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FARM *and* FIRESIDE

The National Farm Paper - Every Other Week

ESTABLISHED 1877

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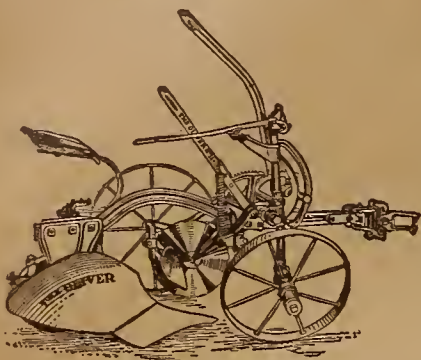
Saturday, March 25, 1916



PHOTOGRAPH BY C. A. PURCHASE

The Constable

Oliver



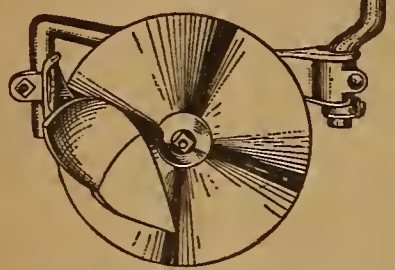
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The Editor's Letter

The Task of Rearing Children Properly

WHAT task, however difficult, can be compared in complexity to that of bringing up a family of half a dozen children wisely and well? Nobody except those who have given their lives—for it is a life-giving labor—to this God-given duty can appreciate the magnitude of the job.

Is this task becoming more difficult under our modern conditions of life? Travel the country over and you will find that the majority of parents feel that the problem of getting children up to a safe and sane age has been made harder by what is popularly considered the improved development of our age.

Here is a part of a letter just received from a Buckeye State father, who must here be nameless, which directly bears on one phase of this question:

"For a long time I have been thinking of writing you about a difficult problem I am trying to solve. I am a poor man, and have been for the past six years, when financial misfortune overtook me. My children are aged eleven, sixteen, eighteen, and twenty, and a daughter over age, who is a teacher in the public schools. My oldest boy also taught school one year, and is now working his way through the first year in college, except for what I can spare of his own money that he saved from teaching and loaned me. These two oldest children are not to be considered, however, in the question being submitted to FARM AND FIRESIDE. The three younger boys have not been willing to make use of school advantages, except the youngest boy, who is coming slowly. The two next older boys quit school last spring. They were 'dumber' than oysters in school work, and I cannot get them interested in books, papers, or anything along that line. These boys are interested only in hunting, fishing, and loafing in town until midnight, where they spend every cent of money they can get hold of.

"I am no angel, and am not highly educated. But I was a public school teacher for a few years, so you can perhaps realize how it grieves me to see these boys take the turn I have mentioned. I try to reason with them, but if they set their heads I can as easily reason with a stone wall. One of my main troubles is to get the boys interested in working on the farm. A year ago I borrowed money and bought a three-year-old colt, and gave it to my eighteen-year-old son, thinking it would induce him to become interested in the stock and farm. He worked fairly well for a short time, but soon got lax and careless again. When they occasionally hire out to someone else they insist on keeping all their wages, and if allowed to, it all goes to feed the slot machines and for games of chance the first time they visit the city.

"I do not wish to take any unfair advantage of my sons, but if they were capable of taking care of themselves in every way it would be much less trouble and worry to let them go for themselves. The oldest boy began to be a man at twelve years of age, and was willing and ready to do the fair thing; but these younger sons are without ambition, and nothing I have been able to do or say has resulted in any improvement. As a last resort I have come to you for any suggestion you may offer."

When the Problem Changes

Anyone who has lived fifty years understands how different the child-rearing problem is now compared with that of two-score years ago. The difference is marked in city, village, and country, but is greatest among rural dwellers. Boy and girl nature, and parent nature as well, changes but little. But consider for a moment how boys and girls in farm homes to-day are in touch with widespread disturbing influences that were not dreamed of a generation or two ago, and influences that must be turned to their good.

Communication is instant with neighbors on every side. Towns and cities a dozen or more miles away are easier of access by trolley and automobile than was the neighborhood village store in Grandfather's day. This new environment and the speeding up of life's activities have practically overturned the whole structure of youthful development. Unless helpful educational influences, both parental and public, keep up with the multiplying complexities and distractions referred to, and unless we show our young people how to get the best out of these new conditions and influences, the chances for making good citizens of our boys and girls are distinctly less than formerly. Instead of singing school and debating society "letting out" at 9:30 in Grandfather's day, there is now easy ac-

cess to a rapid round of "movies," theaters, and public balls for the farm youth, who thus gets a taste developed for the gay and frivolous life.

In putting this matter up for the consideration of FARM AND FIRESIDE readers, my intention is not to convey the idea that farm young people generally are "going to the dogs," but to show how different and difficult the problem has become for some parents to-day. In this particular case cited in the letter here published, the blame cannot be placed offhand on the new order of social and mechanical conditions, nor entirely on the parental influence. The two older children are making good, and the two next younger seem equally sure to become failures. It will be remembered that Solomon himself failed to get his numerous offspring safely over the shoals which then as now endangered the voyage between youth and manhood. Reading between the lines of our correspondent's letter there are indications that this home lacked the essential co-operation between husband and wife as the years went by, which was present when the elder children were passing through the critical period from eight to fifteen years of age. Another and more enlightening indication in the letter (only portions of which could be published) was the old-fashioned and very ordinary character of the rural school attended by this farmer's younger sons.

Teach About Farm Life

To be perfectly candid, how can we hope or expect to get our boys and girls enthused and eager for the best things of life, and to understand and appreciate what modern rural life holds out for bright, clean, willing workers, if we hold fast to the old type of obsolete rural schools, where we teach everything but the very things having a definite relation to farm life and farm business? And then we wonder why the coming farmers and farmers' wives do not fall in love with rural life! More often than not the city-bred teacher is constantly, if unconsciously, steering the pliable minds under her care away from unrealized rural opportunities toward misconceptions of the superiority of city life.

I would not let a miner or a sailor whose life has been spent entirely apart from horses train a valuable driver or saddler. Neither would you. All teachers of rural schools should know what farm life holds out to-day for the young people under their charge, and prepare them for it just as city children are prepared to meet the conditions of city life. How is the undeveloped mind of the boy and the girl to get a correct and attractive view of what modern farm life has to offer unless their school associations and studies constantly reflect the real possibilities of the farm?

And I am not forgetting the part that right home influences play in getting best results in school and farther on in life. But where the spirit of true, unselfish co-operation exists between parents, and reaches out to encourage and energize the teacher of their children, failure in the latter is the exception.

I cannot believe that easier means of communication, better and more rapid transportation, and the more varied kinds of recreation as represented by the automobile, the phonograph, and the moving pictures, giving us the treasures of travel, history, art, and music, will have anything but a beneficial influence in the education and development of our children when once we learn how to use them rationally.

Before closing this letter I wish I might suggest something that would be of help to the parents whose problem I have here placed before FARM AND FIRESIDE readers. Is there a reasonable plan for side-tracking their unthinking boys and others like them? At this late date the young man of eighteen has practically fixed for himself a mediocre and perhaps an inferior destiny. Nothing less than some revolutionary overturning of his entire idea of life and forcefully facing him up to the change that comes when genuine Christianity is accepted and lived. This has changed inefficiency into efficiency in many a boy and man with no cost attached for the regeneration.

Another, but a man-made, expedient which has sometimes worked well when boys nearing majority are going wrong regardless of parental effort is enlistment in the navy.

The Editor

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When You Buy a Motor Car

What it Costs to Operate a Machine; How to Increase its Usefulness

By W. V. RELMA

Being an expert mechanic and having owned a public garage, Mr. Relma has obtained an endless amount of information valuable to owners and prospective owners of automobiles. He has bought, sold, repaired, and driven motor cars for many years. Mr. Relma wrote this article at the request of FARM AND FIRESIDE.

AN AUTOMOBILE will stand an amazing amount of abuse and still run. But by correcting difficulties as soon as they occur and keeping the car in perfect running order, the best results are obtained in usefulness, economy of operation, and pleasure. The well-cared-for automobile is always ready to carry you anywhere, and you will get home at the time you planned. The operation of an automobile is relatively simple when once learned, for it is simply a combination of parts each of which has a certain duty to perform.

A friend of mine in Wisconsin tells of a young man in that State who bought a car for jitney use. About twice a week he called at a certain garage for gasoline, and kept it up for more than a month. One day the proprietor asked him if he didn't need some oil. He wanted to know "What for?" When told that an automobile engine needed lubrication he was surprised, but on examining the engine for the first time he concluded that it needed some. Other users are almost overcareful.

An Ohio painter has been running an old-style car for three years, and his repair bill for the entire time has been only \$35. He has a little trailer for hauling his ladders, and the outfit is cheaper and more practical for his use than a horse and wagon. "When I hear the least noise out of the way I get right out and fix it," he says. "If I let it go on for a couple of miles, something would be sure to wear. If people would only adjust their machines at the first inkling of anything wrong, they wouldn't have many repair bills."

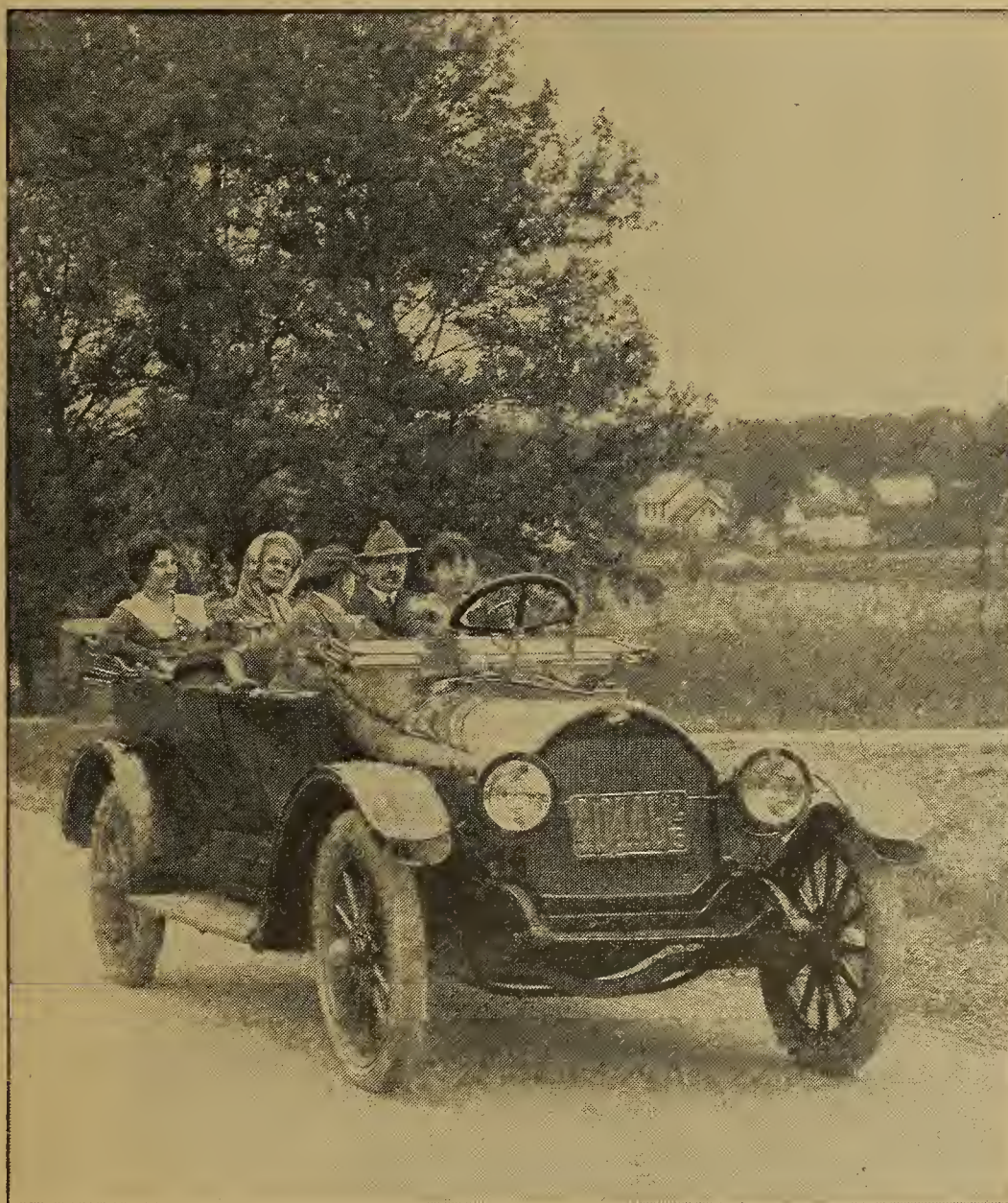
The automobile races in which cars are subjected to a terrific strain have brought out the weaknesses of different machines, and have aided designers in getting the proportions just right for emergency use.

Big, unsightly fenders have given way to crowned fenders of least wind resistance. High, awkward tops have been replaced by low, graceful ones. Hoods and body lines have been constantly refined to give a graceful sweeping effect. Bulky tool boxes and large attachments of various kinds have become less conspicuous, and heavy, overstrong, and large castings have been succeeded by light yet strong parts which give greater tire and gasoline mileage. Modern cars can now make a greater mileage on poor gasoline than the old single-cylinder and two-cylinder cars did on high-test gasoline. Standardization of parts and increase in number of cars have enabled manufacturers to produce better cars at a lower cost.

The most vulnerable part of an automobile is its tires, but you seldom see a machine delayed very long even by a blow-out. The chief reason is the improvement of the tires themselves. Pneumatic tires are the most satisfactory, economical, and easiest riding.

Tire-filling preparations of rubber-like nature for stuffing outer casings are on the market, but manufacturers of pneumatic tires will not guarantee their tires if you use anything but air. There are also tire coverings of leather, some of which are studded with steel rivets to prevent punctures and skidding. These coverings for a 3½x32-inch tire cost \$15 each.

Personally, I get good service from ordinary pneumatic tires, and do not find repairs very expensive. But it may be interesting to mention a few of the special tires. The solid rubber tires and tires made solid except for cut-out sections are good for pavement



The operation of an automobile is relatively simple when once learned, for it is simply a combination of parts each of which has a certain duty to perform

and smooth roads, but are rather expensive, costing as high as \$150 per set. You have the satisfaction of being immune from punctures, but your tire mileage costs you more than pneumatic tires, and the solid tires lack the elasticity and are also heavier.

Special inner tubes are made which reduce the likelihood of punctures. They cost about twice as much as an ordinary inner tube, and have a merit about in proportion to their cost. One kind has a thick side which is placed next to the road side of the tire. It is so thick that an ordinary nail or tack fails to reach the air chamber of the tube. Another tube is supposed to repair its own punctures through a property of the rubber which closes up a nail or tack hole.

One puncture-proof tire has metal disks embedded in the casing. Such tires are expensive to make, and they sell for considerably more than ordinary tires.

The Tires and Tools to Carry

ICARRY an extra tire and jacks and tools for changing it. Then in case of trouble the extra tire is simply exchanged for the one that has come to grief, and I make repairs at home after I get back. This is one of the most economical methods, and is satisfactory in most cases. But for greater convenience, and as a means of changing tires very quickly, the demountable rim is better. This is an entirely separate rim on which is carried an extra tire already inflated. Loosen several bolts on the rim of the wheel and you can take the old rim off, tire and all. Then you slip the demountable rim on, tighten the bolts, and are ready to go again. Another convenience is the "quick detachable" rim, which helps in the quick interchange of tires but is put back again when the new tire is

adjusted. Carrying extra wheels complete with inflated tires is a practice which has not come into general use.

Some car owners thoroughly enjoy their machines, and will drive them anywhere during the day, but hesitate to drive at night. They fear tire troubles or accidents. On the other hand, physicians, busy farmers, and young men in love drive their machines a great deal after dark and with the right sort of equipment, and feel no anxiety. Besides, there are few pleasures more enjoyable than driving a car in the cool of a summer evening. The erratic old carbide tank has been replaced by the presto tank or electric lights. The electric lights may be operated by independent storage batteries, which have to be removed and charged ever so often. But the most popular and the best system is one consisting of battery and a generator which is part of the motor. Thus the car makes its own current.

The headlights of a car are stationary, which gives good illumination on a straight road or moderate curves. But when I am going to make a long trip at night I like to have a movable wind-shield light in addition. This is a strong light clamped about halfway up on the wind-shield rim, and can be turned by hand so it will shine on objects in the road or at the side of the road. This light is run from the usual battery or source of light. The cost of rigging it up is about \$5. Another convenience is a trouble light, which is nothing more than an electric bulb and socket with a generous length of lamp cord. A trouble light costs about \$2 complete, and enables you to make adjustments or change tires at night with much ease.

Another improvement which adds to the pleasure of night driving is the dimmer which most cities require and all up-to-date motorists use. A dimmer reduces the glare of a headlight, but still gives enough light to see the road and other vehicles. Cities are very strict about enforcing the use of

dimmers, and it is well to be informed about regulations in cities visited. Most regulations require the lighting of automobile lamps within half an hour after sundown, but these lamps may be just small oil lamps so that others may see the car and turn out for it. That is about all there is to night driving. Fast driving at night is of course unwise and dangerous.

No limit can be set for the life of a modern car if it is run at moderate speed and kept in good repair. After about four years of use, with ordinary driving, a car will need overhauling which will cost from \$30 to \$150, depending on the size of the car. This includes new piston rings, reboring of cylinders, and general tuning-up. After that the car will give service for three or four years more. New bodies cost about one fifth the original price of the car.

A machine will carry enough gasoline to last it about 150 miles under average road conditions. If the car is used mostly for short trips to town and back or around the neighborhood, the tank will need filling about once a week. The automatic measuring pumps used by most garages give full measure, and that is perhaps the best way to buy gasoline. Unless you install a tank of at least a hundred gallons, and have facilities for replenishing the supply and for preventing evaporation, it hardly pays to store gasoline.

The use of kerosene as a fuel for motor cars has not been a success thus far, though some carburetors will handle it fairly well. Kerosene gives a bad-smelling exhaust, makes the engine hard to start, and may result in heavy carbon deposits in the cylinders. Some drivers get fairly good results by using a mixture of one part kerosene to four of gasoline, but I would not advise the general use of gasoline substitutes unless you are a real automobile expert.

Automobile Runs Errands

Where the Car Contributes Its Part to the Farm Income

R. C. GIFFORD

WHENEVER I think of the automobile I think of the many errands which have to be done on a farm, and then I heave a sigh of relief because it has solved our errand problem. Our machine has solved this problem because of its low cost in running and its reliability. It is used in doing all the light errands and also all sorts for which a one-horse jagger or milk wagon is used.

My father and I feel that it is just as cheap to use a machine, even with gasoline at the present price of 25 cents a gallon, as it is to use a horse. In fact, for us it is cheaper. The automobile never falls down on a pike and bursts open its knees as one of our horses did, and it never catches a contagious disease in a livery stable as horses will. But, instead, it takes us all the way, even on the longest errands, and saves railroad fare as well as the expense of getting something to eat.

Our greatest expense with the automobile is gasoline—not tires, as so many people claim. But even the gasoline expense is not great, because we average from 20 to 22 miles on a gallon, and under very good conditions have averaged 25 miles. However, on very cold days the average drops to 15 or 18 miles to the gallon, because the gasoline doesn't vaporize properly.

In order to get this high gasoline average I make it a point to keep the spark plugs clean, to see that the timer is clean and well oiled, and that every other part of the electric system is in good order. All gasoline is strained through a chamois before it goes into the tank.

The tires are tested by an air gauge every 75 to 100 miles, and cuts are repaired with a small vulcanizer. The fact that we seldom drive faster than 18 miles an hour probably accounts for our not having much tire trouble. If a light machine is driven 35 miles an hour the hind wheels keep bouncing off the road. Then, of course, they spin, and that soon grinds the rubber off the tires.

The machine can also be used when it is almost impossible to drive horses. In this locality nearly all of the main roads leading to the small towns are built of crushed stone. On some of these roads, when rain is falling or there is a heavy frost, horses have a hard time, even in walking along the edge. Sometimes as many as three horses fall and hurt themselves in one day. Automobiles go right down the middle of these same roads without chains and never slip a bit.

Here is a sample of the way we do errands with our machine: Once each week we take eggs to a town ten miles distant, where we supply a hotel. We plan to do all the other errands in that direction in the same trip. We deliver other things which have been engaged, take the parcel-post packages and mail them at the office instead of watching an hour for the R. F. D. man; get the weeks' groceries, hardware, and other things we need. On the way home we stop at the railroad station for freight or express. We usually need something from the warehouse or mill. And we finally wind up by stopping at one or two farms for other things. All this, and in half the time it would take to drive a horse directly to the hotel, deliver the eggs, and come home.

The number, variety, and quantity of things which can be packed in a machine is remarkable. We often carry several hundred pounds of poultry and cattle feed, with a large box on top of that. But we are always careful to see that there is plenty of air in the tires before we put on a heavy load.

The automobile is of distinct personal value to us in carrying colonies of honey bees. We are, in a very modest way, beekeepers. No one, unless he has tried it, can imagine the sensation of sitting on the edge of a wagon seat, with one eye on the bees and the other on the horses, almost afraid to draw a full breath for fear the bees will get out, sting the horse and make it run away. Often, in cases like that, the driver gets hurt, the horse either kills itself or injures itself so badly that it has to be killed, and the bees, in their indignation at their sudden spill, sting everything in sight. This causes an endless string of lawsuits. It certainly is comical to the onlooker who is safely out of the bees' range to see other folks frantically clawing at the apparently empty air and literally fading into the shrubbery. But there is no humor in the situation for the poor old beekeeper.

With the bees in an automobile it is quite a different story. If they get out, the beekeeper can stop the machine and sit on the bank until they cool off a bit. Or he can immediately don a bee suit and, with the aid of a smoker, make them go back in the hive, and fasten them in more securely.

Did I hear someone ask, "If the bees stung the beekeeper, wouldn't he run the machine up a tree?"

Not a bit of it. He is used to bees. Though anyone who drives a machine ought to be so used to it that when things go wrong he will stop it automatically.

A few weeks ago I attended a public sale quite a distance over in another State. I bought a lot of bees of whose dispositions we knew nothing. After people had lifted off the hive covers and disturbed them until they were very cross, I had to fasten them in the hives and bring them home.

We could not have gone to the sale if we had not had the machine, because it was too far away. These trips, of which the one just mentioned is a sample, mean quite a lot to me. Through a combination of bad luck and bad management nearly all of my bees died last fall. Consequently, if we had not had the automobile it would have meant no bees. And no bees would have meant a very slim pocketbook.

Please don't get the impression that we never take any pleasure trips. We sometimes do, and we often combine the two. You see, we believe that every department of the farm ought to pay. Hence even the automobile has to hustle.



Chamois-strained gasoline, clean spark plugs, clean and oiled timer, efficient electric system, and properly inflated tires mean a high mileage from a gallon of gasoline

Car Saves Time

Goes 15,000 Miles; 170 Fewer Days

By VIOLA K. WILCOX

THE automobile has brought many and great benefits to mankind. Going back to and depending entirely upon the horse, faithful and trusty though he be, would be about on a par with setting aside the electric light and trying to read by the glimmer of a tallow candle. Time to each of us is just a little measured portion of duration. Hence, every invention, great or small, that helps us to make more of our time, to accomplish in minutes what before has taken hours, with the same expenditure of energy, is a blessing, and such we find the automobile.

Now, how can one realize the greatest benefit from the automobile as a time saver?

First, one must understand the mechanism of the machine, what every part is for and what relation it bears to other parts, so that if there seems to be a general disturbance, or even a slight confusion of sounds, he will be able to locate and remove the cause.

An incidental time saver in running an automobile consists in having a good and complete set of tools, each always in its exact place, and knowing how to use them. One should never start out on a trip, however short, without knowing that the car is in a dependable condition, and has the required amount of oil, gasoline, and water.

Our car, at the present time, has run 15,000 miles, at an average speed of 20 miles an hour, which is about

all one can make on the ordinary country road. I find that I have traveled 750 hours. The average speed of an ordinary horse is said to be six miles an hour. At that rate, to cover the same distance, the horse would have traveled 2,500 hours. Here the car shows a saving of 1,750 hours, or 170 ten-hour days.

It is argued, and with some show of reasonableness, that it costs much more to keep an automobile than a horse. If one keeps the horse long enough to do the work that an automobile will do in a given time, he will find the expense is a good deal. Besides the feed he must figure the wear and tear of harness and vehicle, keeping the horse shod, veterinary bills, and possible loss of time from sickness and accidents.

We are fully convinced, after keeping an accurate expense account, that pre-eminent among the advantages of a car is the quality of saving time.

Gets Best Prices

A Car Brings City Markets Nearer

By E. L. VINCENT

SPEAKING with my boy about the practical value of the automobile we have had on the farm for the past four or five years, he smiled a little bit, and said: "Well, I wouldn't know how to get along without it; it has become so much a part of my life."

Now, that sums the matter up right. We have found our automobile of the greatest worth in making trips to the city, 18 miles away by the best route, and 12 miles over the hills. It comes in handy when we have stuff that must be got to market right away, like butter and eggs, both of which we turn off at regular intervals. We can get to town and back in a little while. It shortens up the day's work wonderfully. It gives us longer time in the city if we need it. As it used to be, we had to hurry all the way round when we drove the team over and do the best we could, and could rarely get back before dark.

Then, too, after the day's work is over it rests a fellow to get out the machine, lean back, and take a little spin. Something about the movement that rests us all. A friend of ours puts it this way: "It pumps your lungs full of pure air and does you all sorts of good."

One can cover a good deal of ground in a few hours with a machine, and get an idea how the country looks, such as one might not otherwise have. In this way the automobile has a decided practical value. It keeps us in touch with one another as farmers. We visit more, get more ideas from each other, and learn how the crops are coming on all around.

The time is coming when every machine will have a starter on it. That part of operating a machine is sometimes pretty hard. I have often stood by and watched the farm laddie crank the machine, especially in cold weather, when I felt pretty sore over it. It is too hard work on the heart to grind that way so long. All he would permit me to do was to grunt, and that rather got on his nerves, so I had not even that satisfaction. So I say, give us starters. A neighbor of ours has batteries in his machine, and by simply flooding these with hot water he warms the thing up so that it begins to puff in short order.

As to the expense, I think Laddie hit that right too, when he said: "It is the cheapest horse a man can have. It depends a great deal on the state of the roads one must drive over, the care and skill of the operator, and the price of gasoline."

Do the best you can, sometimes the automobile is a balky thing. It is provoking to get all ready to start and then not start, but hunt and wonder and work until all tired out, body and soul, and maybe not go then. To get the best of a motor car under all circumstances is an utter impossibility. It will beat you if it can, when it takes a notion to do it. When it is in the mood it cannot do too much for you.

But on the whole, the automobile has become a necessity to every farmer who wants to make more money and get the most out of life at the same time.

The Farm Machine

By GLYDE FROST

THE farmer who owns a car wonders how he ever got along without one. It comes into play not only on the pleasure side but on the business side as well. The car helps keep the young people on the farm. It will enable them to see more of the country, and thus broaden their scope of vision. The car is a help to us in marketing at noon or in the evening while the horses are eating and resting.

Tires are pretty expensive, but we have had only one puncture in three years. When we find a cut or torn place in the tires we clean it with gasoline and fill it with a tire filler. We also keep the mud cleaned off, as this causes them to decay. One can learn to save gasoline to some extent by coasting down steep hills.

About the Home Garage

How to Build and Equip a Place to Keep a Motor Car

By ALTON A. FOSTER



Although many persons believe that most garages charge exorbitant prices for work and accessories, such is not the case. Some garages depend upon the sale of cars for a profit; others depend upon repairing

GARAGE. How do you pronounce it? Liverymen sometimes call it "gair'-idge" to make it rhyme with carriage. But modern usage has ruled that it is a French word, and we must accept the French pronunciation, which is ga-razh'. "Gaar'-ej" is also correct according to literary experts. Some automobile owners keep their cars in the barn where they used to keep their buggies. When such a place is not very near hay or straw, it makes a good place to keep a car. But when you consider that a certain amount of oil and gasoline is bound to be spilled when you are working on a car, fire precautions can hardly be too strict. I like a separate building.

A nice size for a medium-sized car is 12x15 feet, with double doors in the front that leave an opening eight feet wide and eight feet high. This will allow a modern car to enter with the top raised, and will give you working room on all sides of the machine.

Two or more windows in the garage are a good thing, but you must have shades for them so that the building can be darkened. I have seen cars faded on one side because there was too much light on that side of the garage. Bright sunlight is also bad for the tires. You will also need an artificial light about in the center of the garage and a movable light of some kind.

The kind of floor is largely a matter of personal preference. A wood floor has the advantage of convenience in laying, but it must be made strong where the car stands. Be sure that nails will not work up.

A concrete floor is good, though it sometimes makes the garage damp, and your car may sweat unless plenty of ventilation is provided. If I were laying a concrete floor in a garage I should have wide grooves made in it just far enough apart to make tracks for the car. The standard tread of automobiles is 56 inches. My garage has a dirt floor. The chief disadvantage of a dirt floor is the dust in summer and the mud in winter.

Go Over the Plan Carefully

IN PLANNING the general arrangement of the garage first consider how you want your car to stand, whether facing the door or with back to the door. The natural way to put a machine away is to run in and back out. The only advantage of backing in is to have the car all ready to run out in case of an emergency, such as going for a doctor. Garages have been made with large doors at both ends; also so the whole building can be turned around. For my own part I run in and back out. This leaves the front of my car at the back of the garage, near my work bench and tools.

A garage work bench needs to be about a foot or eighteen inches wide and four to six feet long, preferably along the side of the garage. Among the supplies which I have found most useful are:

A gasoline vulcanizer, which costs about \$2; also raw rubber, talcum powder, and incidental vulcanizing supplies. An adjustable wrench costing about \$1. A good adjustable wrench will save you hours of time. A small iron vise, set of drills, and a hack saw. Box of bolts, nuts, and cotter pins. Tire tape, extra valves, and pieces of wire. Ammeter for testing batteries and tire gauge for testing pressure in tires. Air pump for inflating tires. Have it fastened to a board so it will stand up alone. In the car itself I like to have an extra inner tube and casing, a steel tow line, and some rope for winding around a rim if I am forced to run home on the rim.

Some kind of a bumper is a good thing to have in the garage. I have a piece of two-inch iron pipe staked on the ground where I want the front wheel to stop. A piece of 2x4, with the edges rounded off, would answer the purpose about as well.

A dry driveway up to the garage is another matter worth considering. Gravel is good, but two tracks of concrete, each about a foot wide, are better. Then you are practically independent of mud and slush, and your car will carry less dirt into the garage.

I am sometimes asked about the best method of heating a garage in winter or of keeping the radiator from freezing. If you can keep the temperature 45 degrees or more, that is comfortable enough for working around with your coat on. I have found a round-wick kerosene heater is quite satisfactory, since I can move it

EW

around to where I am working. A coal stove that gets very hot or that throws out sparks has no place in a small garage. To keep the car's radiator from freezing there is little choice but to keep the garage warm, or to add some anti-freezing preparation to the water. Before a cold snap I generally go out and pour some denatured alcohol into the radiator.

If you have any garage problems—the garage itself or about the tools needed—write to the Automobile Editor, FARM AND FIRESIDE, Springfield, Ohio.

Getting Repairs

Good Mechanics Give the Best Service

By W. V. RELMA

GARAGES vary from the "converted woodshed behind a country store" kind to a several-storied building in which all of the visiting cars are whisked up-stairs on elevators.

Although many persons believe that most garages charge exorbitant prices for work and accessories, such is not the case. Many garages are operated at a loss. Few make money such as the investment would seem to warrant. Some garage owners depend upon the sale of cars for a profit; others depend upon repairing.

The best garage, I believe, is a comparatively small one operated by a competent mechanic with a force of assistants who are familiar with many different cars. Such a garage is run with the smallest amount of expense. The price charged for work in such a garage will range from 50 cents to \$1 an hour. This will depend upon the rent the garage owner has to pay, or charge to his investment if he owns the building.

Because the motor-car industry is growing so rapidly it has created a demand for competent mechanics in garages that has been difficult to supply. This shortage is being rapidly overcome, and the garages are getting adjusted to the new conditions. Such a rapid growth has caused to spring up in some places garages with workmen that are familiar with only a few makes of motor cars. They can do excellent work upon these

makes, but on strange makes their work isn't of such a high order. This has caused many automobile owners to feel that the garage owners weren't giving them the value of their money in repairs and overhauling work.

These limited-experience workmen are honest. They go about their work slowly because they may not know just what the trouble is with the strange-to-them machine. Work in many of these shops costs from 50 to 60 cents an hour. There are good, bad, and indifferent persons in the garage business just as in any other business.

A person should avoid the lazy garage if he wishes to get the worth of his money in repair or overhauling work. Such a garage does good work, but as they loaf on the job and charge a fixed price an hour, the charges for work are exorbitant. In one such shop I know of, the owner will stop in the middle of a hurry job to give a long recital of some of his experiences.

To Repaint a Car

New Materials for Finishing Cost \$6

By JOHN COLEMAN

THE automobile owner who desires to put a new finish on his old car can hardly expect to produce the same mirror-like finish of a new car. But with proper care he can look for a very satisfactory result. The material for a thoroughly high-class job ought not cost more than \$5 or \$6.

Factories begin to paint from the raw metal and wood out. They build up the finish with many coats of varnish and paint. After the car has been used a while it becomes weathered, and it is upon this dulled coat that the owner works. This undercoating makes possible for the novice a very presentable job.

If, however, the body is in very bad condition and the paint is chipped and scaled off, it will become necessary to remove the old paint. This can be accomplished by the use of a blow torch or a paint-removing fluid such as is sold at paint stores. One who is not familiar with the use of the blow torch had better use the other method, since there is danger when the torch is not used correctly of damaging the car. Then, too, there is the danger of the fire around the gasoline in the car or possibly in the garage.

With the paint remover it is simply a matter of applying the remover with a brush and scraping off the paint with a putty knife. After this is done the whole surface should be sandpapered and the cracks filled with a special putty. Steel wool is sometimes used in place of the sandpaper. It is more convenient to handle.

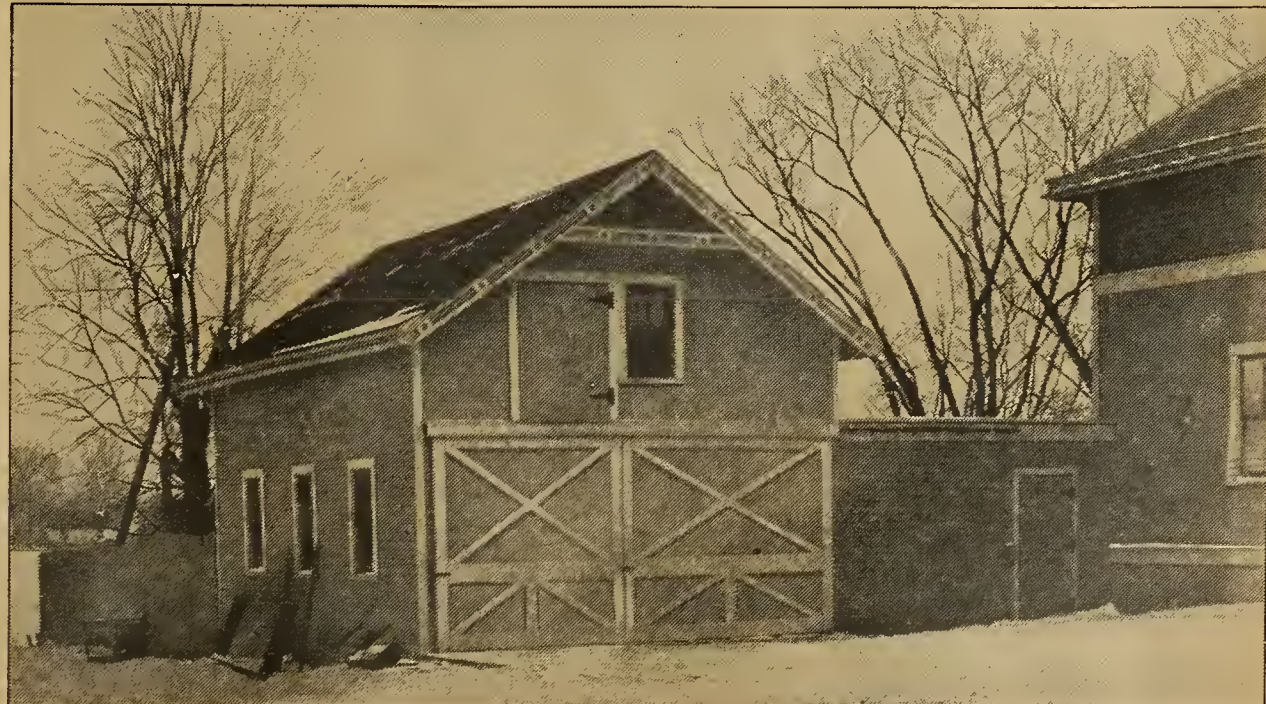
The dirt and dust should be wiped off carefully, then the priming coat applied. The paint dealer can give the best advice as to the proper paint to use for this. After the priming coat come the filler coats. From two to four filler coats should be applied. After each coat is dry, it should be rubbed down with a rubbing stone and water. After all of them are on, the final rubbing can be made with sandpaper or steel wool of great fineness. This is necessary to give the smooth effect desired in the finished job.

The first color coats should be allowed to dry a full day and night in a dust-free room. The next coat is the one that determines the real color of the car. This calls for extra care. Take every precaution to keep the car free from dust. This work cannot be done in a dusty room, or in a room where the doors are opened and closed frequently, or where cigar ashes are blowing about, or even over a dusty floor where the movements of the painter may start a small cloud of dust. The last coat is the pale finishing coat, and will dry in a day or two.

Merely because it seems dry is no reason for the car's being used right away. The car should remain in the garage for several days in order that the paint may fully set. This will prevent the tendency to crack.

The owner who merely wants to refinish his car will begin his operations at a point represented by the last filler coat. In other words, he will smooth down the rough spots, and touch up the car with priming paint after all holes and cracks are filled with putty. Then the two color coats are applied and the coat of finishing varnish.

If the garage is kept at an even temperature the finished job will be in a better condition.



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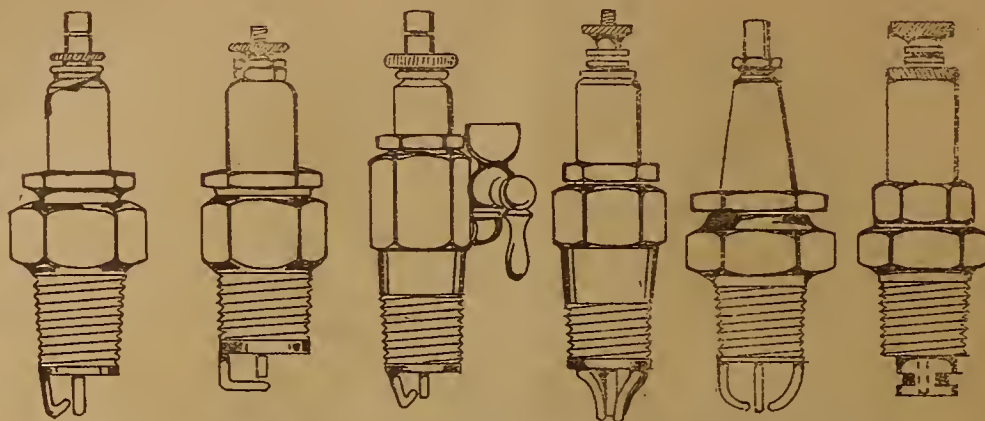
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The Car's "Works"

Explaining the Mysteries of the Engine

By HARRY B. POTTER



Here are a few of the most successful spark plugs. The third from the left is a priming plug by which gasoline is admitted to cylinders through stopcock

THE number of persons who have no practical knowledge of mechanics and yet run their own automobiles is so amazing that I have often been asked: "How do they do it? How can a young girl who doesn't know a crank shaft from the carburetor run an auto with such grace and skill? How can she or how can a professional man with his head stuffed with medicine or law have the nerve to venture miles away from a repair shop?"

A small-town merchant who has run a large touring car for three years admitted to me the other day that he didn't know the principle of the gas engine except that it responded to his control. He said that some day he hoped to study it all out, although he didn't see how that would help him to get any more service out of his car. This case of blissful ignorance is not exceptional, but simply helps to show that automobiles as now built are very nearly "fool-proof."

If you have plenty of gasoline in your tank, and everything "sounds" right, you are about as sure of getting anywhere and back as if you took a train or trolley car.

Practically all motor cars made to-day have enough speed and power for ordinary usage, but if you live in a very hilly country it is a good plan to select a car that has a large horsepower in proportion to its weight, including the weight of the passengers. For example, if the car weighs 2,400 pounds and you expect to carry passengers whose combined weight is 600 pounds, you would want a machine developing around 30 horsepower. One horsepower for every 100 pounds of total weight will take you over practically every road horses can use.

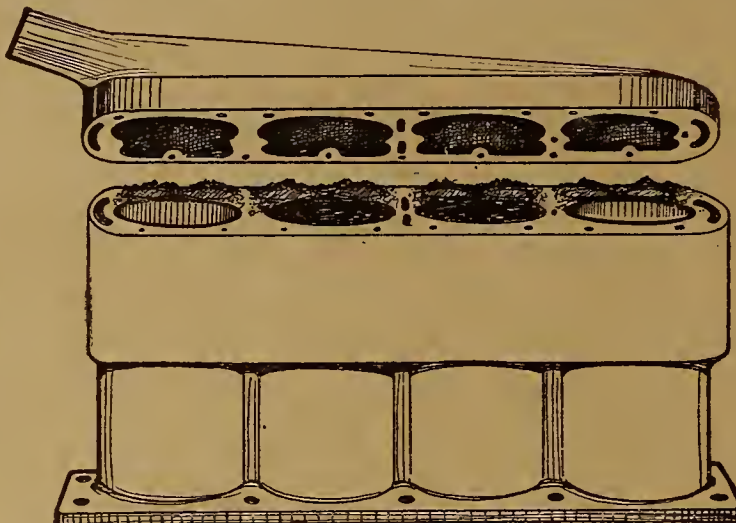
Give Uniform Power Flow

All pleasure cars now have at least four cylinders, which give a fairly uniform flow of power. A six-cylinder motor runs still more smoothly, and when you get up into eight and twelve cylinder engines the power is nearly as smooth as that furnished by an electric motor. Vibration, such as used to give us headaches in the old two-cylinder car years ago, has given way to a gentle purring as though a contented tom cat were concealed in the car instead of a spitting vixen.

The amount of power an engine will develop depends on the bore of the cylinder, length of stroke, and number of cylinders. Hill-climbing ability and

speed depend mostly on horsepower, but also on style of gearing, weight of car, and the wind resistance. Touring cars are now made with engines developing as high as 75 horsepower, and racing cars have up to 125 horsepower. But at some of last year's races foreign cars of less than 50 horsepower won a number of events because of their light weight and low wind resistance. One American car, stripped down till it weighed less than 1,000 pounds and having scarcely 25 horsepower, made a speed of 80 miles an hour. Every car owner knows that it takes more power to drive a machine when the top is up than when it is folded back.

The best form of engine construction is a problem on which experts are still working. Some four-cylinder engines,



This is the way carbon deposits look. Most of the carbon collects in the firing chamber and on the piston heads

for instance, are cast in one block or, to borrow the French term commonly used, are made "en bloc." A block casting is easier and cheaper to make, and besides there is nothing to get loose or out of line as far as the cylinders are concerned. Other four-cylinder engines are cast in two pairs, which are consequently easier to repair, replace, and adjust. Six cylinders in one block is about the practical limit; twelve-cylinder cars are made in two blocks of six each. The opinion has gained some headway that an eight-cylinder engine, for instance, is twice as powerful as a four. This may be the case, but not necessarily since the cylinders are nearly always made smaller when there are more of them. The main advantage of a six, eight, or twelve cylinder car over a "four" is the smoothness in running. The main disadvantage is the increased number of parts meaning complexity. An automobile engine secures its

power from the explosion of a mixture of gasoline and air in the cylinders. The mixture when compressed is set off by an electric spark at just the right time to give the greatest impulse to the motor.

More than a hundred different kinds and shapes and sizes of spark plugs are offered for sale at prices from 50 cents to \$1.50. There are priming spark plugs which have a little stopcock and reservoir so you can introduce high-test gasoline in the cylinder for starting a cold engine easily. A few of these are a good thing to have. I also like to have two or three extra ordinary spark plugs with me, as they save time on the road in case one of the plugs in the engine becomes sooted. While cleaning them is a simple matter, I prefer to do that at home, not by the roadside. With ordinary care a spark plug will last a year or more, and some of the best ones will endure two years' use notwithstanding the terrific heat and the violent explosions they must stand.

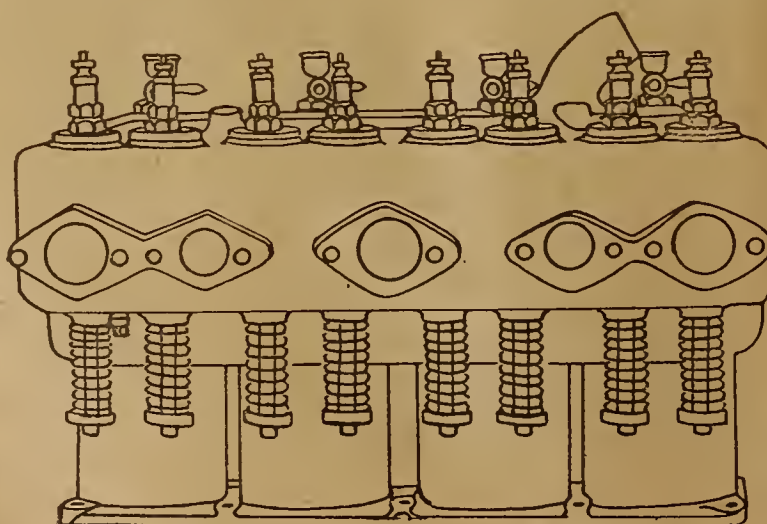
Water Cools Most Motors

With a few exceptions automobile motors are all water-cooled. Air-cooled motors have been tried in some low-priced cars, and the failure of the cars themselves has put the system of air-cooling in rather bad repute. But one excellent car in the \$2,000 class has a successful air-cooling system. Of the water-cooling systems, perhaps the most common is the thermo-siphon system in which the water circulates through the radiator just the way it does in a house heated by a hot-water system. Other cars have a pump to force the water through the radiator where it is cooled. The thermo-siphon method is the simpler, but the other somewhat more effective.

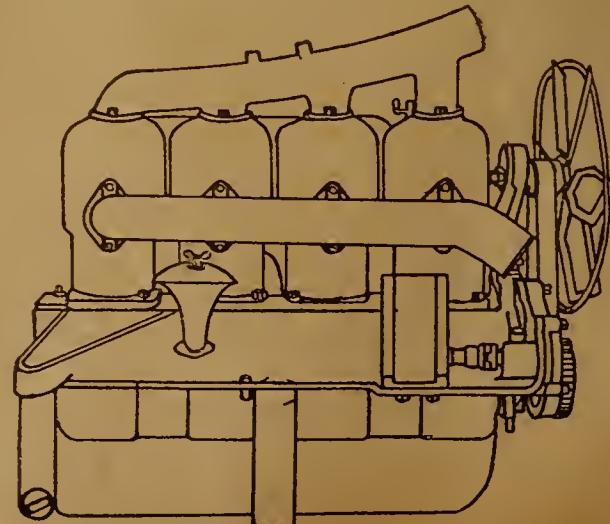
One of the most perplexing problems in motorology is that of carbon deposit in the cylinder. This so-called carbon is only partly made up of carbon from the gasoline. The rest is charred dust from the air, burnt and hardened cylinder oil, and impurities in the gasoline. All these things are burned in an automobile cylinder, and the result is a black deposit which gradually accumulates all over the firing chamber and on the piston head. If this deposit becomes very thick, say half an inch, it may even get red-hot. This is because carbon is a poor conductor of heat and the cooling system of the motor affects it but little. In such a case the heat of the carbon may fire the charge prematurely, resulting in the characteristic carbon "knock" which is the warning to clean your cylinders. Fortunately, this is a simple matter, as a great many engines are made so the cylinder heads can be removed and the carbon scraped off. I usually clean my carbon off about every thousand miles or so.

Various carbon removers are on the market, but as good a way as any to reduce this trouble is to put a few drops of kerosene in the hot cylinders before putting your car away for the night. The kerosene will soften any carbon that has formed, and the next morning the soft carbon will be blown out through the exhaust. The carbon must be blown out the next day or the piston rods will rust. While this method is effective and quite well known, something about human nature keeps the average car user from going to the "bother" of it. After all, carbon doesn't bother me much, and I would rather scrape out the carbon a couple of times a season than to use the method mentioned. The sleeve-valve motor which is used in some cars, costing from about \$1,200 upward is supposed to be immune from carbon trouble. Some carbon will form, but this acts as graphite to lubricate the motor.

From what has [CONTINUED ON PAGE 23]



A four-cylinder engine built en bloc, all of the cylinders cast together, as compared—



—with separate cylinder type, in which every cylinder is cast by itself. Both types have advantages

Happiness on Four Wheels



"OUR car saves us enough time so we have time to get around in our county and adjoining counties to visit with friends and relatives. When we go to town we have time enough to stop along the road and chat a few minutes with a neighbor. These trips and visits keep us well informed of what changes are being made in the farm practices in our part of the State. We know what the market price of all kinds of produce is in every town in the county, and can take advantage of the difference in price."



WHAT is more pleasant and invigorating than to clean up after a hard day's work, eat a delicious supper, and take a refreshing spin through the quiet and cool countryside? Absolutely nothing. After riding around a while, if you wish to drive to town and enjoy the second show of the open-air moving picture theater you can easily do so. Many car owners drive 30 or 40 miles after supper. Such a ride gives the whole family a surplus of energy for the next day's work.

"DURING the threshing season we exchange work back and forth with our neighbors. We do this because we can't always get the right kind of help and in the amount we want. This plan also saves us paying out money. The automobile fits into this situation very well. My sons and I can get up, do the chores, eat breakfast, and drive to the scene of the threshing operations on a neighbor's farm four or five miles away in time to start work with the rest. Formerly we often had to spend the night where we were working because of the distance, and Mama and the girls had to do the chores."

"BECAUSE of the wet weather during the 1915 haying season, working days in the hay field were few and far apart. Due to incompetent help breaking machinery, I had to drive six miles to town several times to get repairs, while a part of the haying work was stopped. I saved a lot of hay that I couldn't have saved if I hadn't owned a motor car to run errands with. One day the tongue of the side-delivery hay rake dropped out of the neck yoke and broke when the driver trotted the team and rake over a bumble bees' nest. A rainstorm was coming up and I wanted to get in all of the hay that was down. I did. The round trip to town was made in forty minutes."

WHEN they have a motor car to drive, country girls have better advantages and a whole lot more fun than the girls who live in the city. They enjoy all of the good things of both the country and city. They get to see and help plants and animals grow and develop. They can enjoy the pure, fresh air, and the quiet of the country. They can attend all the social affairs of the town, and enjoy the same social life that their city cousins enjoy—the theater, dances, teas, lectures, and the many other social activities that girls like to do so well. Truly, the motor car keeps the young people on the farm.



FARM and FIRESIDE

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March 25, 1916

Henry Wallace, Farmer

WHEN Henry Wallace died February 22d, American agriculture sustained a great loss. The death of Henry Wallace occurred in the First Methodist Episcopal Church at Des Moines, Iowa, shortly before he was to open the concluding session of the Laymen's Missionary Conference.

"Uncle Henry," as he was lovingly called by all who knew him, was a big man mentally, and a stalwart man physically. He had a most comprehensive fund of information covering nearly every subject of human interest. He made friends because he was friendly. The vigor with which he stood for fairness and justice for the farmers endeared him to them, but made him many adversaries.

In his career as minister, farmer, editor, and lecturer, he met life at every angle. He was a wise parent, a faithful friend, a tireless worker, sane in his optimism, progressive but never destructive, regardful of the old and hospitable to the new. His life is an inspiration to us all.

Born near West Newton, Pennsylvania, of Scotch-Irish ancestry. Henry Wallace was educated for the ministry of the United Presbyterian Church. After preaching fifteen years, and when he was forty-one years old, he was compelled by ill health to retire. It was natural that he should return to the work of his young manhood. He took up farming near Winterset, Iowa.

Twenty-one years ago he founded the agricultural journal that bears his name. He was a member of the Country Life Commission appointed by former President Roosevelt; was chairman of the Third Annual National Conservation Congress; was sent by Governor Clarke of Iowa, with former Secretary of Agriculture Wilson, to Great Britain to study agricultural conditions; was a leader in the Laymen's Missionary movement, and a prominent factor in Y. M. C. A. work.

Henry Wallace leaves a name which is a pride to his family, to his State, and to his country.

Weeds Above Ground

WAY back in the time of Christ, farmers were engaged in the unending fight against weeds. The parable of the sower tells us the thorns (weeds) sprung up and choked the grain. This weed fight began when the first husbandman started to till the soil, and will always be a stimulus to better soil culture.

Of course we cultivate to kill weeds, but let us never forget the even greater good accomplished in warming and aerating the soil and making it a happy home for our invisible friends, the beneficial soil organisms. If we make these living soil aids comfortable, they work for us; if we fail to do it, they loaf on the job.

Of late we have learned more about weed robbers above ground—the smuts and other parasitic plants. The smut of oats, for example, is a weed that sucks the juices from the flower parts and developing kernels, leaving only chaff or slimy spore masses at harvest time. Many a field that to the casual eye looks promising in midsummer, at harvest

shows from a quarter to a half of the stalks barren.

Fighting smut is very much easier and simpler than warring against weeds in the soil. Soaking the seed before sowing in a well-adapted germicide solution like formalin—a pint of formalin mixed with 40 gallons of water—kills the smut seed, and the fight against this enemy is over for the season. A half-hour spent in killing smut germs before seeding often results in doubling the grain harvest. Have you tried it?

The Corn That Yields

IN THE corn belt, varieties of corn are known as are the names of people. They are important. Each variety name expresses individuality. Whether the individual is able to yield 100 bushels to the acre or not is an important consideration.

So much greater the surprise, then, when in a report of what he did in a corn contest a Washington State boy

fungous diseases as well as for insect destruction.

The dust is now distributed with power-driven blowing machines for large operations. It has been found that the dusting of large orchard trees can be accomplished in about one fourth of the time required for spraying similar trees. But the operation, all things considered, is rather more expensive.

We know better now that finely divided sulphur prevents fungus spores or seeds from germinating on the foliage and tender sprout growths, and thus prevents blight, rust, scab, and various other fungous diseases. It has been found that it makes no difference whether the sulphur is distributed by using air for a carrier or water for this purpose, and the same is true of poisons used for killing insect pests.

The main consideration is that in one case the insurance material can be taken to the orchard or field in a wheelbarrow, or light conveyance, and in the other scores of tons of water must be hauled.



Business houses in towns through which the Lincoln Highway passes are placing on their letterheads the words, "On the Lincoln Highway." There is pride and a commercial advantage in being on a good road. A good road is a welcome. So in the selection of men who are to have charge of your roads select those who have the real spirit of road-building as well as an understanding of the best materials and methods. Do not imitate that community which refused to improve its roads because they were afraid the city "dudes" would use it. Good roads, good judgment, good neighbors, good farms, and good towns are nearly always found together, as you would naturally expect.

says: "I plant yellow dent corn for my main crop. I find it outyields any other variety I have ever grown." He then tells of the yield of 149 bushels per acre, which made him a prize-winner.

Washington is claiming a place in the corn belt. There are reasons why her claim is rational. She can grow corn. But the error which has crept into this report, as well as into many similar reports from other corn-growing States, should be corrected.

"Yellow dent corn" is to the corn world what "white race" is to the human world—it is a race name. When we refer to Reid's Yellow Dent and to Leaming, we are talking in the corn kingdom just the same as we do in the human kingdom when we refer to the Garfields and the Lincolns.

We must come to know the variety of corn that will do the best for us on our fields, and then we must have more than a passing acquaintance with that corn; we must really know it by its name and characteristics.

What corn do you grow, and why? The editor of FARM AND FIRESIDE would be glad to have you write and tell him.

Dust Gun vs. Squirt Gun

THE dusting method of applying insecticides is making quite a stir these days. The process is in no sense new.

A score of years ago we used a mixture of Paris green and plaster of Paris or flour to poison potato beetles and various garden-insect pests. The new thing in the process is dusting to prevent

Rubber Shoe Cures Mare

DEAR FARM AND FIRESIDE: It has been a long time since I received your kind answer giving treatment for a mare foundered by eating too much wheat. We live about two miles from a blacksmith shop, and she was so lame. I waited first for soft roads. The blacksmith gave the required treatment to the feet, except on the worst one he put a rubber shoe. She was still quite lame until about a week ago. We had it reset, and she is doing nicely; limps very little. Think she will come out of it all right.

You were very kind in answering so promptly, and think the treatment will restore her usefulness.

ALBERT BLANCHARD, Ohio.

Butter From One Cow

EDITOR FARM AND FIRESIDE: I have taken FARM AND FIRESIDE for eighteen years, and always found it worth while, but I wish to take exception to the article entitled, "Don't Churn Whole Milk," especially the part where it says that hand-skimmed cream is "only slightly better" than churned whole milk.

I have had customers walk a mile and a half to my house to pay me 40 cents a pound for butter two weeks old in preference to paying 30 cents at the store for the best creamery butter, fresh as they could get it. I have never used a separator, and seldom have a pint of buttermilk. Have used many churns, but now I use a granite saucepan and a large granite spoon, and beat my butter in less than twenty minutes. One need not have "leathery" cream if a loose lid is put on the pans.

When I was green, just learning to care for my milk, I was told it was no use for me to try to make butter from one cow. I had a fine red and white Shorthorn which I was obliged to milk three times a day, besides letting the calf suck. I made butter every other day, and sold it at top prices at stores without question. Now, I am criticizing this particular article, which surely amazed me. Mrs. W. S. Bryan, Kansas.

More About Sudan Grass

DEAR EDITOR: I have just been reading an article on Sudan grass wherein the writer thinks it will do away with oats and sorghum. I disagree with him. Last year I had quite an experience with Sudan grass. I planted it here in Washington County, Ohio, in different ways and on different kinds of soil. It did not stand the wet weather as well as sorghum, and when left to mature it rusted badly.

Of course last year was extremely wet. I found that where clay and sand were mixed it grew best. Neither will it grow where the aphids work. You can tell where the aphids are located by watching where ants are most numerous, because the aphids are the cows of the ants. The aphids will suck the life out of a young Sudan-grass plant so it will never stool.

Some of my Sudan grass grew nearly seven feet high. This was planted in hills three feet apart in the rows, and the rows were also three feet apart. I never plowed it, but hoed it once. It had lots of seed, but about the time of ripening it began to rust much worse than the sorghum. From my experience I should say it would pay here on a very dry year when frost did not come too soon. Cattle like it, and it produces lots of seed. But it is hard to thresh and clean unless you raise enough of it to have the threshing done by machinery. In a hot climate, where the season is long, it ought to be a paying crop. But how far north is now the question which can be answered only by experimenting.

SHERMAN SLOTER, Ohio.

Our Letter Box

Blames Buying Methods

TO THE EDITOR: In your valued paper of January 15th I noticed a statement in regard to cattle-feeding. Some one is quoted as saying before a number of Iowa cattle feeders that anyone who claimed to make money feeding cattle was a liar. At least that was the impression I got. Now I know that in Iowa they feed as well as in many other States. I also know that such a remark won't hold good in Indiana.

If a farmer buys his feeders right and feeds them right, he is not going bankrupt or make a loss of \$25 per head. But a bad "buy" is likely to wipe out all profits and make a loss. Losses should be placed where they belong, not against the business. In the fall of 1913 I was in Kansas City to buy feeders, and met a good many feeders from all parts of the corn belt. One man from Iowa bought his feeders at \$9.35 per hundred pounds, or \$110 per head, to be shipped to Iowa to go on feed.

At the same time and on the same market I bought some good young cattle, all whitefaced Kansas grass-fed steers, at \$7 per hundred, or \$56 per head. I never heard how the Iowa man came out of the deal, but he had a good chance to lose \$25 per head; but I do know how I came out. I sold my cattle the next summer for \$9.35 per hundred at home. I have been feeding cattle and hogs for forty-five years. I commenced in a small way, and am at the present time feeding 100 head. I have made enough money to buy 350 acres of land, which is now improved and raises double the crops it did at first.

It is the man that jumps in and out that loses money, as far as I have observed.

D. M. JONES, Indiana.

Morgan County Answers

EDITOR FARM AND FIRESIDE: In your January 29th issue, under heading of "A Bonanza Beet County," you speak of the sugar-beet growers of Weld County, Colorado, receiving \$4,000,000 for their 1915 beet crop, and you ask, "Who knows the net profits of these growers?"

Morgan County borders Weld County, and will not take a back seat for her except as to size. From careful estimates the majority in this vicinity consider that it takes a ten-ton crop of beets to break even; that is pay for the seed, the hand labor, the rent or interest, and the team and machinery labor, whether hired or done by the farmer himself. In most instances the farmer does his own team work, hiring the hand labor. The 1914 crop in the Fort Morgan factory territory averaged between 12 and 13 tons, at an average price of \$5.67 per ton. The 1915 crop, just delivered, averaged a fraction more, but still within the figures above quoted, but at an average price of \$5.71½ per ton. It is like any other crop or community, many fields going as high as 24 tons per acre, and lots of them going 15 tons average. Perhaps you

say, "Then why so low a district average?" Many things cause that; some within the power of the farmer and many without.

Poor preparation of seed bed, perhaps a rain at the wrong time, causing the ground to crust over, a strong wind when the beets are an inch high or so. Later on, insects, blight, or maybe too many hailstorms, although beets can beat most any other crop on hail recovery unless it should come when they are very little and just after thinning. Sometimes they are replanted two and three times for various causes. FRED W. CARRUTH.

Perhaps You're Right

DEAR EDITOR: Your paper is getting better all the time. I could not get along without it at all. The only thing I got against FARM AND FIRESIDE is that it is not a weekly paper—it does not come often enough.

LOUIS HAAS, JR., Washington.

Bits of Good Humor

Nothing New

"Congratulate me, Freddy, my boy. Last night your sister promised to marry me."

"Oh, she promised Mother she'd marry you long ago."

At the Right Time

"Were you beating your wife, sir?" the judge demanded.

"Yes, yer honor."

"How did you come to do it?"

"Lord knows, judge. For twenty years she allus wuz th' one what did th' beat-in', but I jes' happened ter catch her when she wasn't feelin' right."

The Boy Knew

In a recent examination paper for a boy clerk's post was this question:

"If the Premier and all the members of the Cabinet should die, who would officiate?"

Robert, a boy of fourteen, thought for a time, trying in vain to recall who came next in succession. At last, however, a happy inspiration came to him, and he answered:

"The undertaker."

Peculiar

"Do you think your father would consent to our marriage?"

"He might. Father's so eccentric."

Sad Plight

"Dear Teacher: Kate couldn't come to-day; she got wet in the A. M. and cold in the P. M. Mrs. G."

Essay on the Goat

The goat is the descendant of a bed spring, an ostrich, and a politician, and the result is no more than might be expected. The bed spring gives the goat that astonishing agility which enables him to jump up on top of the barn in order to eat the lightning rods; from the ostrich he gets his maniacal desire to devour anything indigestible, and from the politician comes his sweet, unsophisticated look of innocence, which is so deceiving.



The goat is a great aid in keeping tin cans, brickbats, scrap iron, and other such rubbish from accumulating around the farm, as he eats all of these things as fast as they appear, and he would be a greater success in this way if he wasn't so ambitious. But the goat is ambitious, and he keeps branching out and increasing his capacity and diet until he takes in the harness and buggy cushions and machinery and carpets and the knobs off the doors until he almost makes a nuisance of himself. He can strip a long line of clothes faster than the best laundryman in the business.

But the goat is all right in his way, and without him secret lodges never would have attained popularity.

EW



Intensive Manufacturing

INTENSIVE manufacturing, like intensive farming, is simply efficient specialization. The only object of intensive methods is to secure by the intelligent application of specialized knowledge, a larger, better and less expensive product.

Maxwell Motor cars are products of intensive manufacturing. In the first place, we make only one chassis. We do not build cars of different wheelbases, having long since passed the experimental stage of our development. We know that for our purpose a wheelbase of 103 inches meets all conditions and therefore we have standardized that length.

In the second place, we build only one motor—a powerful, four cylinder, high speed, smooth running motor that has created much favorable comment among Maxwell owners. We do not dabble with this, that and some other type of engine—nor do we ask customers to risk the satisfactory operation of any other new and untried fads or innovation.

Maxwell cars are as nearly standardized as it is possible to make them. In all essentials they are correct be-

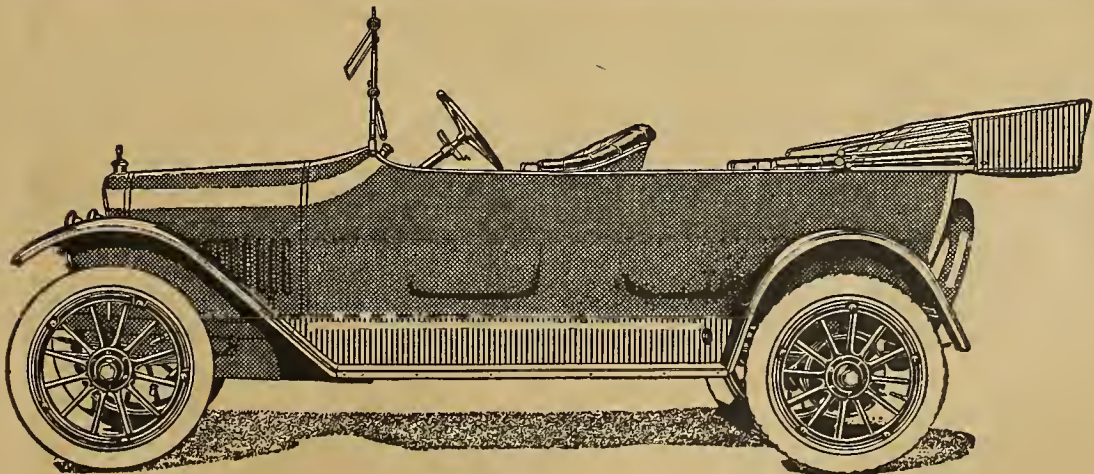
cause they have been put to the test, not only by us but by thousands of owners in all parts of the country. And they have acquitted themselves creditably.

Of course, we are always going forward and striving to produce a motor car that will approach mechanical and engineering perfection. We make minor changes and refinements from time to time, knowing that the march of progress demands it. The "ultimate" car is not here and, like tomorrow, never will be. So the next best thing is to build a car that will approach this condition of absolute excellence.

With a demand exceeding five thousand cars per month, we can and do effect great economies in all manufacturing departments. These economies, as you know, would be impossible with a smaller production or a wide range of types and sizes.

Beauty of lines and finish; sturdiness combined with light weight; economy in first cost and upkeep—these are the qualities contributed by Maxwell intensive manufacturing methods.

Brief Specifications—Four cylinder motor; cone clutch; unit transmission 3 (speeds) bolted to engine, $\frac{3}{4}$ floating rear axle; left-side steering, center control; 56" tread, 103" wheelbase; 30x3 $\frac{1}{2}$ " tires; weight 1,960 pounds. **Equipment**—Electric starter; Electric headlights (with dimmer) and tail-light; storage battery; electric horn; one-man mohair top with envelope and quick-adjustable storm curtains; clear vision, double-ventilating windshield; speedometer; spare tire carrier; demountable rims; pump, jack, wrenches and tools. **Service**—16 complete service stations, 54 district branches, over 2,500 dealers and agents—so arranged and organized that service can be secured anywhere within 12 hours. **Prices**—2-Passenger Roadster, \$635; 5-Passenger Touring Car, \$655, F. O. B. Detroit. Three other body styles.



Maxwell

MOTOR COMPANY, DETROIT, MICHIGAN

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You Men Who Have Pipes

Discarded and forgotten pipes—inactive, retired, “out-of-commission” pipes—pipes you’ve tried to smoke and couldn’t smoke—you men try Tuxedo.

You can smoke a pipe—every man can—but you can’t smoke any kind of Tobacco without making your tongue rebel and your throat get angry. Put the blame where it belongs—the pipe was innocent—the tobacco was the guilty party.

Give your pipe another chance—fill it with fresh Tuxedo, packed firmly but not hard; smoke slowly; and you’ll go into permanent partnership with Tuxedo. One week’s trial and you’ll know why so many men have forsaken all smokes except Tuxedo.

Tuxedo

The Perfect Pipe Tobacco

Tuxedo is a good hearted, gentle, quiet, soft-voiced tobacco—it’s as genial as a sunny day and as comforting as a raise in salary—no “fighting spirit” in it anywhere to muss up your tongue—or fuss up your throat—as “bite-less” as a baby.

That’s because the rich, mellow leaf is first aged in wood from 3 to 5 years and then it’s treated by the famous original “Tuxedo Process”—that takes every particle of bite and irritation out of tobacco.

Tuxedo has plenty of imitators—but there can’t be another tobacco like Tuxedo, because no other can be made by the secret “Tuxedo Process.”

Try Tuxedo *this* week.

YOU CAN BUY TUXEDO EVERYWHERE

Convenient, glassine-wrapped moisture-proof pouch 5c

Famous green tin with gold lettering, curved to fit pocket 10c

In Tin Humidors, 40c and 80c
In Glass Humidors, 50c and 90c

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MR. A. M. ROSE
Judge of the Circuit Court of Illinois

“Tuxedo tobacco is pleasantly mild, yet has a fragrance that is most satisfying. I enjoy Tuxedo more than any tobacco I’ve ever smoked.”

A. M. Rose

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Land clearing an easy, one-man job—big stumps pulled clean with this wonderful machine.

ACTUAL PHOTOGRAPH

The NEW Z \$35

1½ H. P. on Skids with Built-In Magneto

ENGINE

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6 H. P. \$110
All F.O.B. Factory

The one great convincing engine value. Fairbanks-Morse quality—service—dependability—at a popular price, tells the story.

More Than Rated Power and a Wonder At The Price

Simple—Light Weight—Substantial—Fool-proof Construction—Gun Barrel Cylinder Bore—Leak-proof Compression—Complete with Built-In Magneto. Quick starting even in cold weather. Low first cost—low fuel cost—low maintenance cost. Long, efficient, economical “power service.”

See the “Z” and You’ll Buy It

Go to your local dealer. See the “Z.” Compare it on merit—by any standard—point by point. You’ll sell yourself on this wonderful engine value.

FAIRBANKS, MORSE & CO.—CHICAGO

All Fairbanks-Morse dealers sell “Z” engines on a zone carload low freight basis. If you don’t know the local dealer write us.

Important Dealer Service: When you buy an engine from your dealer you deal with a local representative of the Manufacturers. He shares their responsibility. He stands behind the engine he sells. He’s responsible to you. He’s at your service to see that you are satisfied. And he’s as near you as your telephone any time you want him.

“How I Was Swindled”

What Grafters and Fakers Do to Get Money

By OUR READERS

“Draw an Envelope”

I HEARD a loud rap on the front door, and went to answer the knock. There stood a young man holding in his hand fifteen or twenty envelopes, as you have seen people hold cards that are to be drawn.

“Good morning, madam! Do you wish to draw one of these envelopes, madam? Some of them contain numbers calling for very valuable prizes.”

“No, sir, I don’t care to draw.”

“Just try your luck, madam; it will not cost you a cent, there will be no harm done, and you stand a chance to get a valuable prize for nothing.”

Of course I drew, and handed him the envelope. He raised his eyebrows, looked at me, and said: “Madam, you are the luckiest person I ever saw. Your number calls for a \$65 kitchen range.”

Well, I held my breath. “When will I get my range?”

“There is one condition. You must let me have a photograph to have enlarged, which will cost you only \$1.98. When I bring the enlarged picture you pay me the price, \$1.98, take your picture, and your stove will be shipped to your freight office.”

Of course he took the picture. In due time he came back, just at dinner time, with two horses and a driver and himself to feed for nothing, for you know I would soon get my \$65 range and picture for \$1.98.

However, there was condition No. 2. I must pay him \$7 for a frame for the picture, or I couldn’t keep the picture, therefore couldn’t get the range. Poor fool!—I bit again. Paid \$7 for a 75-cent frame. He took the money, \$8.98, didn’t so much as thank me for his dinner, and left, telling me I would receive a card in three days, notifying me the range would be at the freight office.

That was about seven years ago, and I haven’t got the card yet. TENNESSEE.

PERSONS are swindled every day by the schemes that are exposed on this page. If you are familiar with the work of grafters and fakers, you may save a lot of money, some worry, and a great deal of trouble. Some grafter or faker may try to work these fakes in your community any time. These are some of the prize letters of our Swindle Contest.

charged as high as \$75 and \$100. But his work was poor, and nearly everyone is suffering with toothaches since he left. One poor girl had five teeth pulled, but he broke off four of them, leaving the roots projecting out of her gums. They became so sore she couldn’t shut her mouth, and she suffered dreadfully. Finally she had to go away and have her teeth treated.

One young fellow had been out to a dance the night before, and went to sleep while the dentist was fixing his teeth. When he had finished, the young fellow paid him for filling four teeth, but after the man had gone, only one filling could be found, and it was just tamped between two teeth, and his four teeth still had cavities in them. It was such a joke on him, I guess he never will hear the last of it. WYOMING.

Victim of Endorsed Check

THIS is how a prominent jeweler of Cleveland, Ohio, had a nice swindle “pulled” on him:

A man came in to buy a watch. After making his selection he produced a check for \$400. It was after banking hours, and as the jeweler had made his daily deposit he did not have enough money to give the man the difference. So the man remarked: “Never mind, I want this watch regulated, and I’ll be in in a day or two and you can then give me my change.”

In a few days he came after his watch. The jeweler came to him saying, “Your check is no good.”

“Oh, pshaw!” the man exclaimed, “I told those fellows what to do, and they said it was all right.”

Taking back his check, he proceeded to count the amount of cash for the watch, which was \$50. Taking his watch and check he quietly left the store.

Going to the bank on which the check was drawn he presented the check. The banker, seeing the endorsement of the prominent jeweler,—as you know, all these business men endorse their checks and then send them to the bank,—never questioned its worth, and paid out the \$400. They haven’t seen the man since. CALIFORNIA.

Six Cyclopedias—\$123.75

AN AGENT came to my house selling encyclopedias. I did not want his books, and was not able to buy them. But he had a smooth tongue, and by his mesmeric power so slyly and skilfully refuted my arguments as to make me do as he wanted me to—sign the contract. I was to get the books on the instalment plan.

I signed the contract, asking the date. He said he would stamp the date on at the same time he stamped his other orders, when he got back to town. I was still under his influence, so that I thought nothing of this until after he was gone. I soon began to see through the game, but the die was cast, and it was too late to back out.

The set of six volumes came O. K., and are excellent, but I paid three times their value, they costing me \$23.75. I then paid off the whole thing at once, getting a discount. But I failed to receive my note. I wrote, but they said they had sent the note, and perhaps it got lost. I knew my possible doom, and it went just as I expected. Some months later the note came up for collection, but through altogether different hands. It had a late date stamped on and a 1 (one) inserted before the \$23.75, making a plain legal promissory note for \$123.75, bearing my signature.

I studied the matter, and talked it over with a few friends, but decided the best thing to do was to swallow the bitter pill.

Now, dear readers, take the lesson, if you can, from this, and you won’t have to pay \$123.75 for it. Take this advice: If you don’t want an article, never argue with an agent. That is just what he wants, for he is prepared for it. He has an answer for every objection you may bring up. He has made a study of reasons why a possible customer doesn’t want to buy his goods. MISSOURI.

Bungling Dentist

WE LIVE in a thinly settled ranching country, and are 50 miles from a railroad. Therefore we have a long way to go to a dentist, and our teeth are sometimes sadly neglected.

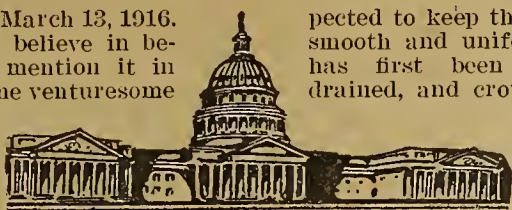
Just recently a man came through here in an automobile, professing to be an old practicing dentist from Salt Lake City, and of course the people were all glad if he could save them a trip away, and thought it a splendid opportunity to have their teeth all “fixed up.”

Well, he got a lot of work, and charged double prices. Some poor families were

The King Road Drag

Missouri Objects to a Federal Bulletin

By JUDSON C. WELLIVER



WASHINGTON, D. C., March 13, 1916.
PERSONALLY, I believe in being natural. I mention it in the hope that some venturesome

person may be inspired to read these observations who otherwise might be afraid to tackle them. Also, by way of introduction, there are some people whose keenest ambition is to be natural, but who, whenever they touch pen to paper, just can't help putting on an air of lofty aloofness.

Among these, I regret to say, are most of the people who write things for the Department of Agriculture.

They want to write to the comprehension of the rest of us; I know they do, for they tell me so. I know, also, that it is the dearest ambition of their chiefs, the people in charge of the Department, to make their work popular, understandable, and simple. But they don't get away with it.

Just why it is that a scientific man will sit down with you and tell you what he has been doing, how he did it, what he discovered,—all in words of one syllable, plau, straightforward, and understandable,—and then write the same story in sentences as ponderous as Charles Darwin's, is hopelessly beyond my ken. That's what the bulletin writers for the Department commonly do.

For instance, D. Ward King of Maitland, Missouri, split a log in two and made a drag of it for work on dirt roads. No need to explain how he did it; everybody knows. It revolutionized the method of working that type of roads. If Mr. King could have patented his discovery and collected royalties from people who used it, he would have been richer than Rockefeller and, moreover, his name would have been a household word. There's nothing like making 'em pay you for it, to inspire respect for you.

Mr. King didn't patent his idea; didn't try to make money out of it. The Department of Agriculture of Missouri discovered him and his drag, and introduced them to the world. Time passed along, and finally the Federal Department discovered King and the split-log thing. A bulletin was in due time prepared, which told how to build and work the drag and what a good thing it was. This bulletin had a great vogue.

Then the high-brows of the Office of Public Roads, in the Federal Department, got hold of the thing. They seem to have been peeved over the simplicity of the drag. There was nothing about it to hang any long words or technical phraseology on.

Thereupon was issued from the Office of Roads a bulletin, No. 597, telling how to build and use a road drag. This drag was to be made with timbers, braces, bolts, and flub-dub arrangements, and could be produced for perhaps \$18 or \$20. It was a perfectly good drag; would do the work as well as the King contrivance, and not a bit better. The King drag could be constructed for anywhere from 50 cents to \$2.50; nobody could have imagined a way to make it cost more than \$2.50, unless he had been bent on deliberately wasting money.

King's Name Omitted

But, by dint of high-browed the drag up to \$18 or \$20, giving elaborate drawings and scaring a man to death over the complexity and expense of it, the Office of Roads managed to provide itself with an excuse for omitting the name of King, and labeling the contraption as a department device. The friends of King rose up in protest. They charge that the Department stole King's idea, and then distorted it out of all chance to retain its popularity; tried to make it so expensive that people would avoid it; and, further, told things about it and its work that were positively untrue and unjust.

There has been most earnest protest against the fact that Bulletin 597 has circulated statements which, it is alleged, mislead the reader. The particular statements of Bulletin 597 to which objections are taken include these:

"... the drag is of little use in improving sand or clay roads which have never been crowned or drained."

"It will be apparent that roads which are very rocky or very sandy cannot be materially improved by its use."

"In order that the maintenance work of the drag may be effective, it is essential that the roads which are to be maintained, first be constructed. The drag is, of course, useful in constructing the surface of roads which are entirely unimproved, but it should not be ex-

pected to keep the surface of a road smooth and uniform until the road has first been properly graded, drained, and crowned."

The only difficulty with the foregoing statements, if we may believe the critics of Bulletin No. 597, is that they are utterly untrue. These critics assure us that the greatest usefulness of the drag is in improving sand or clay roads that have never been crowned or drained; that the drag can be used materially to improve roads that are very rocky or very sandy; and that, in fact, it can be used to keep the surface of a road smooth and uniform even before the road has been properly graded, drained, and crowned.

The Missouri Board of Agriculture and the admirers of Mr. King have for a long time been asking that a practical test be made of the King drag. They claim that under conditions of such test it will prove that it can do, and in fact that it is particularly adapted to do, the very things that Bulletin 597 says it will not do. A spicy correspondence has taken place between Jewell Mayes, secretary of the Missouri Board, and officials of the Department, in which Mr. Mayes has demanded that this practical test be made, and has charged that the department people who got out Bulletin 597 didn't know what they were talking about.

Here is a case of departmental high-browed that really seems to require attention. In the first place, the department people practically stole the idea and theory of the drag from Mr. King without giving him credit. In the second place, they undertook to convince the public that an expensive method of construction was necessary in order to build the drag. In the third place, they alleged that the drag would not do the particular things that it is particularly intended to do and does do.

Precision at All Costs

The Federal Department has made no arrangement for such a test as is demanded by the supporters of Mr. King, but on the other hand, has insisted that no injustice at all has been done to Mr. King or his drag.

This particular case is perhaps of highly exceptional significance because the King drag has come to be used all over the world where there are dirt roads, and has been especially useful because it is so cheap. To make it more expensive would keep one class of people from using it, and to charge that it would not do the particular things that it does best would keep a still larger class from using it. So the advocates of the original split-log drag protest that Bulletin 597 is doing about as much harm as an official publication possibly could do.

Some weeks ago a young man who doesn't know anything whatever about any possible technical or scientific detail of the work in the Department was brought to Washington and asked to find out what was the matter with the bulletin service. His trade is to write, and the trade of writing consists largely in putting things down on paper so that folks reading them will understand them.

This young man first read a lot of the Department's bulletins, talked with the people who had prepared them, discussed the whole matter with everybody involved, and, I am informed, decided that he could do nothing worth while to improve conditions. His notion was that about three quarters of the space and expense given to bulletins ought to be cut out, and that some person utterly incapable of using a technical term ought to be put at the business of preparing the bulletins. When he presented this crude but thoroughly practical idea to the scientific people in the Department, he found them so devoted to precision of expression and completeness of elaboration that they simply wouldn't listen to him.

Nobody can guess what is to come of this effort to popularize the work of the Department. The learned doctors of agriculture and agronomy and soil culture and veterinary surgery might just as well stop discovering the useful things that they do, as to go on telling about their discoveries in the way they do. What's the use of writing Greek at a lot of us simple folks who can understand only plain United States? Congress may have to take a hand in the matter if the Department persists in its present course.

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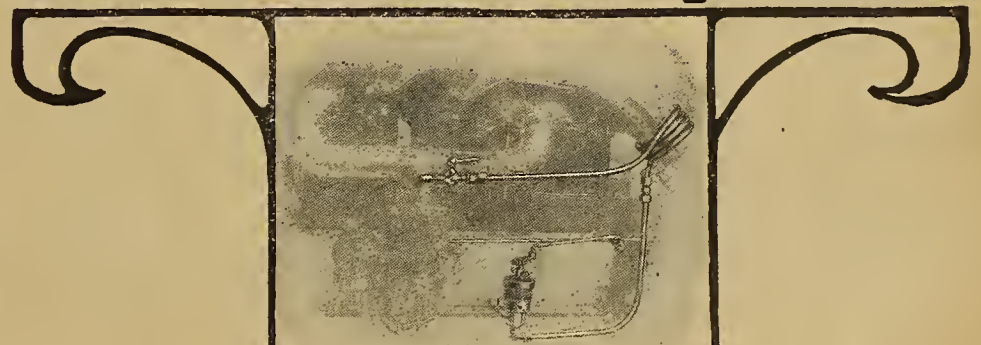
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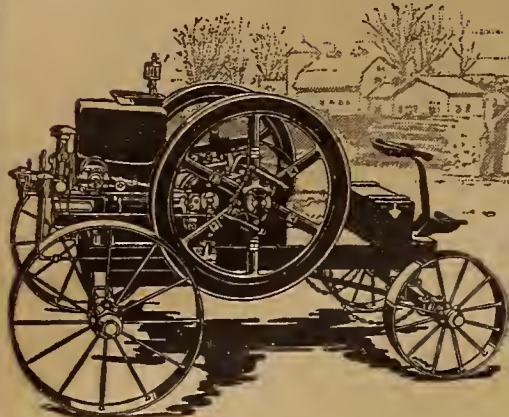
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Live Stock

Speaks Well for Serum

By J. Ralph White

HERE and there throughout the country are farmers who, by constantly keeping informed and being forehanded, take advantage of opportunities to make money, while others go plodding along, scarcely making a living. I have watched a progressive man—Frank Dudley of Yankton County, South Dakota—for the past four years, and have seen him make handsome profits in various lines.

When hog cholera broke out in Mr. Dudley's herd of 600 hogs during the summer of 1912, he immediately telegraphed to the nearest producers of anti-cholera serum, requesting them to send at once a man to vaccinate the entire herd. This, remember, was at a time when perhaps less than ten per cent of the farmers knew anything about vaccination against cholera, and scarcely any of those who had heard about it would allow their hogs to be vaccinated because they considered it as a "new-fangled" notion that smacked of "book farming." At any rate, thousands of hogs died of cholera in Mr. Dudley's neighborhood that summer while his own were saved.

Having vaccinated his hogs and saved 90 per cent of the herd, Mr. Dudley didn't fold his hands and wait for something to happen. On the contrary, he saw an opportunity, and immediately prepared to take advantage of it. He reasoned this way: "Practically every farmer in this section of country has lost his hogs this year, and will hesitate to stock up again. I will feed mine well, and in January hold a public sale of barrows and bred sows, and guarantee every one immune to cholera." When the time came all surplus stock was offered at public auction under this guarantee, and sold at an average of \$10 per hundred-weight when the market price was \$6.15, and the buyers were immensely pleased with their purchases.

He now raises 900 hogs a year, vaccinates every pig on the place at weaning time, and during the last three years, while millions of hogs in South Dakota and Iowa have died of cholera, Mr. Dudley has lost less than two per cent of his from cholera, the usual loss at the time of vaccination.

These hogs are being raised very cheaply, as they get their growth on alfalfa pasture, supplemented with a ration composed of 14 pounds of corn and one pound of high-grade tankage. The brood sows are carried through the winter months on one pound of corn per hundred pounds live weight per day, and all the alfalfa hay they will eat. This ration produces heavy-boned, vigorous hogs that farrow big litters of strong pigs.

Live Stock Plus Energy

By A. L. Mason

SOME years ago I was in Nebraska working by the month. I would work through the summer and spend what I earned for board during the winter. There were a good many in the same fix, but after three years of that I got tired.

So one day I started West. I got to eastern Colorado to a town called Otis. It was a desolate-looking place. I had a young friend with me, a good sort of fellow, who wanted to save up for the future. Well, we both got a job on the same ranch for a month's trial. My friend could not stand it in so desolate a place.

At the end of my first month, I filed on 160 acres of land. After eighteen months I went East, got married, came back, and built a home 2 1/2 miles from my work, but held my job. I worked till 1913, going back and forth in all kinds of weather. But I was after a home. I was getting \$30 a month; when I came I had \$120 in cash. I laid out \$10 for incidentals, and put \$110 into a span of range mares and later, as wages came, I purchased a cow. I haven't bought any more stock except hogs. As I kept all my mares, I now have nine head of good horses, seven mares, fourteen cows, and some heifers. I trade my steers at the ranch for heifers. I have my home and twenty hogs, and we have a fine flock of Leghorns that made us \$172 last year.

It was a hard pull for seven years, and wages only met expenses, but now we are sailing. We have near neighbors and a church and school within three miles of us.

No Guesswork Allowed

By A. F. Ames

I STARTED my career as a hired hand at the age of eleven, when I earned five dollars a month herding sheep in Nebraska. I very distinctly remember the summer I was twelve. I was still herding. My employer, one Saturday night, paid me a twenty-dollar gold certificate, the first I had ever seen.

At the age of twenty and twenty-one I attended a good school each winter, which cost me \$200.

I continued working as a hired man for four years more, and saved \$730, eighty dollars of which I had collected as interest. This was my first practical lesson in the power of interest—there was such a marked contrast between collecting this interest and working four months. I have never paid much interest. Rates are usually too high for a farmer to make anything on borrowed capital.

At this stage of the game I rented a grain farm for five years. The farm was fairly well equipped; but, best of all, there were stock scales on the place. I raised grain-fed hogs and cattle. Right here is where it took all the brains at my command, plus the pencil, to figure out a profit even if ever so small. This was from 1885 to 1900. I guess there are a good many other feeders who will remember this time, but right here is where I got my lesson. I figured the cost of producing a bushel of oats, corn, or wheat, a pound of pork, beef, or mutton. I weighed everything, took an inventory every January or March, kept account of every transaction—in fact, tried to take my business in hand and eliminate as far as possible all elements of guesswork.

By that I refer not only to the buying and selling, but also cost of production, which means the keeping of books.

In 1901 I bought a good farm, was out of debt by 1904, and still have a good farm home, enjoy life, and make money.

Rabies is Controllable

THE State Veterinary College of New York says that rabies can be eradicated from the country entirely by a rigid quarantine on dogs and the elimination of homeless and uncared-for canines.

Australia has never had rabies because of a six months' quarantine imposed on every dog that goes on the island.

Hay in the Hog Ration

EARLY-CUT, well-cured alfalfa, clover, sweet clover, or oat and pea hay is greatly relished by swine breeding stock when pasturage is out of season. Such roughage answers an important and double purpose. The cost of wintering is reduced, and the vigor of the hogs is increased.



Hay-fed hogs get exercise

From one third to one fourth less grain is required to winter the hogs fed hay than where grain concentrates are mainly used for feeding swine breeding stock. Sows will farrow better and more vigorous litters, and there is less danger of the pig-eating tendency developing. Hay-fed hogs get more exercise and spend more time away from their sleeping quarters, and in consequence are less likely to develop nervous diseases of which various forms of paralysis are common when swine are wintered too exclusively on a concentrated diet.

Anyone handy with tools will find no difficulty in constructing a rack like that shown in the photograph. The Idaho Experiment Station designed and successfully used this rack.

Plow-Harness Paralysis

THE misuse of the backband may seriously injure a valuable horse, and this is most likely to occur in plowing. If a plow shows a tendency to run too deep, make the adjustment at the clevis, not by hooking the trace chains up so they pull down on the backband.

The loin of a horse is the weakest part of his back, because there are no ribs underneath to support it. Undue pressure placed on it may cause permanent injury through paralysis of the hind legs. All of the pull should come directly from the horse's shoulders.

More Work from Your Horses



Make their collars fit all the time. They'll work harder if you keep their necks and shoulders free from galls and sores. Prevent these evils. You can

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Dairying

Milk "Bracers"

WASHINGTON and Oregon, which became dry States last New Year's, are taking more than usual interest in dairy products. Buttermilk, fermented milks, and various derivatives of them have gained in popularity as "bracing" beverages. Two large breweries are said to have been converted into up-to-date creameries.

Fermented milk is of a much higher quality now than when its manufacture was first attempted in this country. The best grades are decidedly pleasant to the taste, give an agreeable "scratch" to the throat, and in addition are nourishing. When kept on ice they retain their good flavor for a week or more.

The dairy industry can well afford to encourage the production of such drinks the basis of which is ordinary cow's milk and a commercial culture.

Purchased Feed Pays

COWS are being asked to-day to produce at the pail. They may or they may not have the color that denotes perfection. They may or they may not have a large esentcheon or mirror, but they must be able to produce profitably.

At the same time that this is true it might be said, if the cows could speak, that they are requiring of the owner a proper consideration at the feed box. It is a rule that works both ways—that is, if the profits are what they may be.

An Ohio county, through its county agent, is pointing to this fact in a complicated table of facts and figures which go to show that on the 49 farms in the county producing a labor income of nothing or less the sum received for every \$100 feed consumed was \$86. On the six best farms in the county for each \$100 fed there was a return of \$188.

These facts are interesting in the light of the corresponding figures affecting the feed that was purchased in each case. On the 49 farms, \$9 worth of feed was purchased from the outside for each cow in the herds. On the six best farms each cow received \$32 worth of purchased feed.

The conclusion cannot be drawn that the buying of feed from outside sources is to be recommended and the growing of feed at home to be discouraged. It does say that purchased concentrates added to home-grown feeds increases the earning power of the home crops.

It pays to give the cows what they need.

Good Words for the Silo

By Lewis C. Burke

BEFORE we built a silo we did not have enough feed for our cattle. When we fed corn fodder, the cattle wasted more than they ate. When corn is put in a silo the cattle waste none of it. Ensilage is much handier to feed than corn fodder, and when you have the corn in the silo you don't have to go out on the field after it on a stormy day.

All farm animals will eat good silage. It is a cheap feed, easy to put up and easy to feed. When corn is left in the field the crows and rats and other pests take much of it.

Ohio Grange Active

THE Ohio State Grange is working toward a grange in every township, a county agent in every county, a centralized school wherever possible, and a live church within driving distance of every farm home.

Similar organizations in other States are working toward much the same ends.

Likes Dairy Supervisor

By E. L. Vincent

SOMEWHERE a dividing line exists between profit and loss in our dairy operations. Some of us find that line, and get over it without any other help than our own study and experimentation. Those of us who do that are fortunate; but there are, I am sure, a great body of farmers who do not know to this day just where that line is, nor what to do to find it.

Here is where the services of the farm-bureau man, the county agent, or what-

ever we may choose to call him, comes in handy. In many localities this agent is an unknown individual, for only of late have we come to recognize his value. But some neighborhoods are enjoying the novel experience of having a man come to their farms, look the situation over in a kindly spirit, and make suggestions as to how conditions may be improved and business put on a more profitable basis.

One of these farm helpers whom I know is a dairy supervisor, working in conjunction with a cow-testing association. This man's method is to go to the farm, watch the farmer's methods of feeding and caring for his stock, and with him devise a plan for better work.

To place the matter concretely before us, let me say that one man was keeping eight cows and getting seven cents a quart for his milk. In the month of August his cows gave 1,988 quarts of milk, which brought him \$139.16, and cost him \$120.16. The cost of getting this milk was 6.5 cents a quart. The next month a like quantity of milk cost him \$82.24, or 4.14 cents a quart. Stop a minute and think what that meant. Instead of paying out \$120.16 to get his 1,988 quarts of milk, he paid out only \$82.24, effecting a saving of \$40.92 for the month. That gave him \$1.36 cents more a day. Worth while? Most of us would say so these times.

Too Independent, Perhaps

Still another case may be cited to prove the same thing.

Here the dairy was larger, the farmer milking 20 cows. In the month of November he paid out for feed \$63.46 to get milk worth \$285.32. Under the feeding methods of the supervisor, the next month this man was able to get \$322.78 for his milk at a cost of \$69.46, or \$31.56 more than for the previous month.

Very likely many other farmers in the same community might be helped in the same proportion, had they all been working under the same system. I know we as a class are pretty independent people. We like to have our own way about doing our work. We think we know as much about our cows as any stranger. What is the use of giving any inspector or supervisor a right to come in and meddle? But we must get over that. If a man can tell us how to save a dollar a day on feed, is it worth while to be so proud or touchy as to say, "Go on! I want nothing to do with it"? Seems to me not.

One other thing that is brought about through the efforts of these farm managers is the elimination of a lot of poor cows. It helps to know what cows are loafers and which good workers. The sooner we set about this matter of clearing out the poor cows, the better it will be for us.

Let the Carrier Do It

By Chesla C. Sherlock

MODERN machinery has made it possible to save time and energy in farm work.

The litter carrier is a necessity on any farm, large or small. It will save a great deal of time and labor about the barns and sheds. Once you have used a litter carrier you will never part with it.

An uncle of mine has used one for several years to good advantage. The carrier will take care of half a wagon load of litter and manure at one loading. It can then be pushed along the track to the outside of the barn and dumped directly into a wagon. This eliminates the need for two handlings of the litter or manure, as is generally practiced on the average farm.

Soil specialists have been preaching for years that the only way to preserve the nitrogen in farm manure is to place it directly on the land before the nitrogen has evaporated. The old practice of heaping manure up in the weather and hauling it off to the fields once a year is no longer profitable.



Don't let manure collect; spread it on the fields where it is needed

The litter carrier solves the problem. Simply fill the carrier and dump it directly into the wagon and haul it out to the fields at once. It will save money, time, and energy.

It isn't what you put into a Cream Separator—but what you get out of it that counts.

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Value



DE LAVAL Cream Separators are by far the most economical

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VALUE depends upon the amount and quality of service the article gives you—what you get out of it.

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From the standpoint of its greater durability alone the De Laval is the most economical cream separator to buy, and when you also take into consideration its cleaner skimming, easier running, greater capacity and less cost for repairs, the price of the "cheapest" machine on the market is most exorbitant compared with that of the De Laval.

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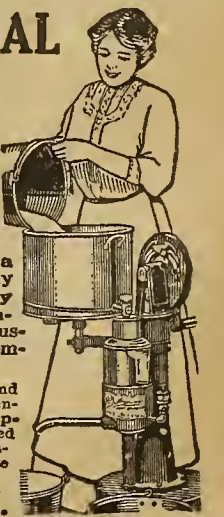
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One Filling

10 Pointers you ought to know about Incubators



Facts—hard, sold facts—naked, unadorned facts—facts you ought to know before you spend a penny for any kind of an incubator, are set before you stripped to the skin, in this new Incubator Book. It is free—free to anyone who expects to buy an incubator and wants to pay only for incubation, not for frills and fol-de-rol. When you see here in this book—

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Charles William Stores
5310 Stores Building, New York



Crops and Soils

Diversified Farming Best

By Pearl M. Sergeant

WE LIVE in one of the best coal and timber regions in the United States, but it is undeveloped. Nearly all our people try to live by scratching over 15 or 20 acres late in the spring and planting to corn. Most of the cultivation is done by hand with a hoe. The process is slow and painful and the yield is poor.

My husband said that as none of our neighbors had succeeded very well it would be poor policy to follow their methods; that we must pull out of the "all corn" rut; that other crops must supplement corn for feeding stock; that lime and commercial fertilizers pay, and that we must depend more upon orchard and garden.

He decided to plow under green crops



This is a deep-tillage plow in moldboard style. It will plow 16 inches deep. Observe the narrow throat just above the share

for the good of the soil; to plow early; to plow deep; to plow often; then to harrow until a fine seed bed was prepared.

By following this plan we have raised good crops of corn. We have experimented with cowpeas, clover, and small grain, and found them to be excellent for stock. Besides, they improve the land.

We have made the garden pay. We have improved an old orchard which had battled alone with weeds and insects for twenty-five years. The trees were moss-grown. After being pruned and sprayed and cultivated these trees have produced very good crops of fruit.

We have great expectations for a few acres planted to choice fruit trees which have been cared for according to the most up-to-date methods we can learn.

Hay for Us

By C. E. Van Devort

SOME years ago my father bought an unimproved farm in central Michigan. Things went well for a time; the land was new and crops were good.

I talked to Father of putting in some grass, but he thought cultivated crops were easier and he did not like harvesting hay. Finally our corn began to fail, and we had to buy feed for our stock. The next year we had to mortgage the place. We tried seeding to clover and timothy. They failed to catch. We tried again with the same results. We had to sell all stock except a team of horses and one cow. Then we cleared some new land, put it the first summer in cultivated crops, and in the fall seeded it to wheat, clover, and timothy.

Well, such grass we had the next season was hard to beat. The rest of the land finally was growing a nice crop of hay and having plenty of stock feed.

YEARS of observation in North Dakota lead to the conclusion that the best time to sow flax is from May 1st to May 10th. After May 10th it is better to wait to from June 1st to June 15th, to escape hot winds and dry weather in blossoming time. After June 15th there is danger of frost before ripening.

Johnson Grass Endorsed

JOHNSON GRASS is a valuable hay crop in the South, though until lately it has not been officially vouched for. But when the British Government placed an order for 500 cars of it per month it was "a horse of a different color," as the

saying goes. This Johnson-grass hay is being used to feed several hundred mules which the British Government is wintering at McComb City, Mississippi.

The order was placed as the result of an experiment made by the Mississippi Experiment Station. A group of 22 mules were taken, and some fed on timothy hay, others on Johnson-grass hay. Those fed on Johnson grass made better gains in a period of eighty-nine days than those fed on timothy. As timothy is worth \$5 per ton more, Johnson grass was found to have a total advantage of about 33 per cent in economy of feeding.

As a further result of this experiment, the National Hay Association has put Johnson grass under a definite grade with the same classification as the Northern hays. An experiment of this sort shows in a specific way what most of the stations are doing right along, though perhaps in a less conspicuous manner.

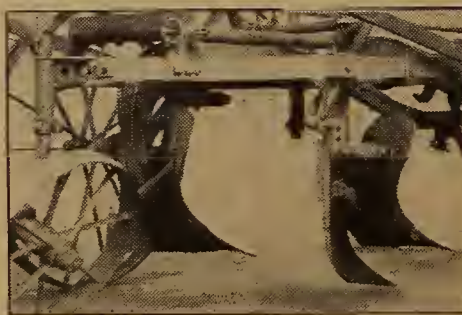
Deep Tillage Explained

THERE is a difference between deep tillage and subsoiling. Deep tillage is the process of stirring and loosening the ground below the usual depth of plowing. Subsoiling is the process of passing an implement through the subsoil. For deep tillage work the two principal implements are a deep-tillage disk plow or a specially constructed moldboard plow. The moldboard plow simply loosens the ground in the bottom

of the furrow, but does not bring the bottom soil to the surface. Only the top two thirds of the furrow is turned over. The deep-tillage disk plow mixes the bottom soil all through the top soil.

Subsoiling is most commonly done with bill-shaped metal points. Sometimes these are attached to the plows, or it may be a separate implement to go in the bottom of the furrow made by an ordinary plow.

Deep tillage is the quicker method of the two to deepen the seed bed, but it requires more power than subsoiling.



The bill-shaped device is a subsoiler, in this case attached to a gang plow. It is customary to subsoil every other furrow

FIFTY THOUSAND of the 225,000 farms in Iowa could successfully use tractors, according to J. B. Davidson, an Iowa machinery expert.

Plowing for Moisture

By Will H. Schisler

THE old method of turning the furrow slice over flat is all right provided you are not turning under any organic matter like manure, rye, clover, or stubble. If this humus-forming material is turned in the bottom of the furrow and the season is dry, your crop will be reduced one half for the want of moisture from the subsoil. So the best way to turn that furrow slice when plowing under a crop or sod is to set it up at an angle of 45 to 80 degrees so the edge of slice will rest on the subsoil and commence to furnish moisture as soon as needed.

Plowing this way, disking the soil deeply, and having the organic matter worked in and mixed with surface soil will hasten the growth of crop. The kind of plowing you do means success or failure more than any one farm operation.

The method of plowing I have mentioned helps our corn crop, especially in dry seasons.



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Will Advance Expenses and Pay Straight weekly salary of \$18.00 to man or woman with fair education and good references. No canvassing. Staple line. Old-established firm. **G. M. NICHOLS, PHILADELPHIA, PA., PEPPER BLDG.**

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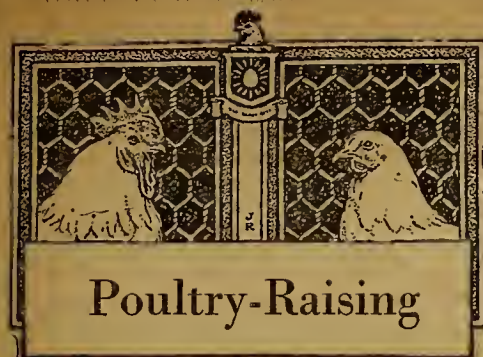


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Make Young Chicks Thrive

By M. Roberts Conover

GAPES, catarrhal conditions, and bowel troubles are a deadly menace to all young chicks put upon old ground. By old ground I mean soil that has been used for poultry successively without renovation. Upon and near the surface of the soil, germs of disease are harbored, making it more and more difficult, and finally impossible, to raise the young birds to maturity. I try to make the soil safe before the chicks are allowed upon the ground.

Lime in some form is a great help as a soil cleanser. Either carbonate of lime, which is usually used to sweeten land, or sulphate of lime, known as gypsum or land plaster, will answer the purpose. I spread the lime freely about in the runs, and later plow it under. This plowing should be quite deep and thorough. Young chicks can then be safely allowed on the old ruins.

However, certain poultry runs, as in an orchard or a vineyard, do not admit of deep plowing, and here it is wise to plant something—oats, rye, clover, and garden vegetables, for a season, will work the soil into a wholesome condition and again make it safe for chicks.

The next thing to consider is the coops. Economy demands the use of the same coops for many generations of chicks. These harbor much injurious germ life. My first work is to sweep and scrape them free from all dirt. I then apply disinfectants that will reach every crevice. Have ready a boilerful of water into which has been stirred two tablespoonfuls of kerosene oil and one tablespoonful of crude carbolic acid to each gallon of water. For the small brood coops I use a sprinkling can, for the hen houses a spray pump. Sprinkle or spray the water thoroughly over every portion of the interior and close the coops. The small coops may be laid over on the back, drenched with the liquid, and covered.

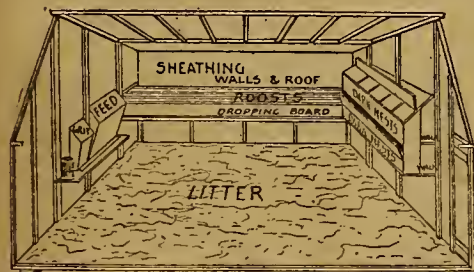
The fumes from this steaming hot wash rise with great pungency and make a very effective disinfectant.

This disinfectant is also well adapted for cleansing the drinking pans and feed vessels.

Decks Cleared for Action

MANY poultry-house interiors are so cluttered up with feed troughs, water vessels, low-down nests, dust boxes, and the like that much valuable floor space is permanently lost to use.

Here is a house interior arranged so that all the floor space is in use for the fowls. Furthermore, the nests, dropping



boards, hoppers, and drinking fountains are easily accessible. This floor space will accommodate one fourth to one third more birds than one that has the furnishings occupying the floor space.

Bourbons Heavy Layers

BOURBON RED turkeys are developing a reputation as unusually heavy layers. Here is another example from L. H. Clemons, an Ohio champion of this breed:

"My pure-bred Bourbon Red turkey began laying late in April, 1915, and kept it up, without once getting broody, to September 1st, when she had 129 eggs to her credit laid in her regular nest. In addition to these eggs she had laid quite a number of eggs without shells, or with very thin shells, off the roost and about the yard.

"By September 25th she had laid 150 eggs of which a record was kept, without once showing any signs of broodiness. For foundation-stock purposes I consider this Bourbon Red turkey hen worth \$100, just as some specially bred, high-producing dairy cows are worth several thousand dollars."

Corn going to a dollar?



DR. T. N. CARVER, in "WALLACE'S FARMER" of December 17, says: "It is not improbable that there are men now living in the corn belt who will live to see the price of corn average as high as a dollar a bushel." Corn is worth growing even at present prices. It costs 80 to 90 cts. to buy and 15 to 30 cts. to grow.

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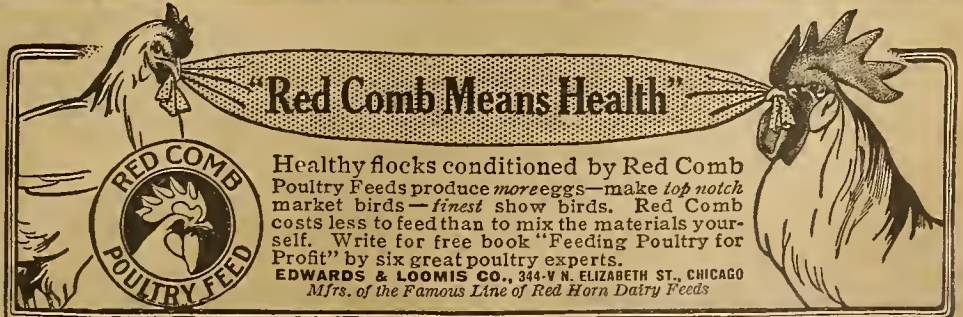
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Woman Markets Apples

By Bettie H. McDonald

"CINCH it, if you can buy that orchard for \$75." This inelegant way of conveying his opinion was addressed to me by an experienced fruit grower in answer to a request that he look over a near-by orchard of 105 trees and advise me whether to invest. He added: "It's a pretty big job for a woman single-handed; you'd better get married before you buy it."

The orchard was one which never before had paid expenses to the owner, whom I suspected would not mind cheating me if he could. So I hesitated. Finally I offered him \$25 for it. The owner thought it over and concluded he ought to have \$30; so I paid it.

Between chore times and household work I picked and packed the apples. Being entirely alone, I was not compelled to stop work and wait on other people, neither was I able to call on others to help me. The year was a good one for apples, and I hauled my loads to the station, less than a mile away. From the cider apples alone I realized over \$100. I had picked these up every other day. I first filled the box of the wagon; then I filled bags and laid them across the top. The largest load returned \$15.60. That was the greatest single load ever received at the cider mill. For cider apples I received 22 cents per hundred at the beginning of the season, and 57 cents at the close. Two dollars a barrel for seconds was the lowest price for those I shipped. The first five barrels of Sheep's Nose apples returned me \$5 a barrel. My Northern Spys and Baldwins were the most plentiful, and they sold for from \$2.50 to \$3.50 per barrel.

At first the people wondered how a "poor, weak woman" expected to load the barrels on the wagon. Their anxiety was calmed when they saw me put the empty barrels on the wagon and pack the apples there. Nobody seemed to think about my moving the 30-foot ladder about from place to place. That was the hardest work, but not unpleasant. At the end of the season I had received for my apple crop \$282 as the result of my \$30 investment.

Low-Down Garden Cart

BECAUSE he wanted a cart for use about the garden, O. P. Miller made one that has worked quite well for the past two years. He thinks it would be well if every farmer worked on the basis of making what he must have if he cannot buy the thing that fits his needs. In this case the parts purchased were the wheels and the axle, both from a junk shop, and parts of an old corn planter. The corn-planter axle happened to be one of those U-shaped axles, and so did not need rebending to form the pocket into which the box body should set. The photograph shows very well



how the cart was made. Mr. Miller uses it for the hauling of his garden truck about the farm, and for hauling soil and manure and fertilizers as needed in his gardening operations.

Plants in Paper Boxes

By Bert W. Culbertson

IN THE spring I find that it pays to start early plants in paper boxes such as florists use, setting one or two plants to each of these boxes. Thus you may start them early, and after the danger of frost is over you can transplant to the soil by just digging a hole and burying the whole box, leaving the plant above ground and just in the same condition as it was before, the roots not having to be disturbed at all. The moisture soon softens the box so that the roots may spread about as they please, and the plant grows very rapidly.

Some Rose Hints

[By John T. Timmons]

THE crop of roses for June can be made about April 1st if the rose-bushes receive a little attention.

If the roses were mulched with leaves and rotten manure, dig this into the soil; and if there was no mulching, place some manure about the rosebushes and dig this in.

Before any digging is done, if a little bone is added there will be much larger and finer roses in June.

Coarse crushed bone, or even bone meal, a fourth of a pound to each square foot of surface for two or three feet on either side of the rosebush, will be just right.

If in digging this in you should happen to cut some of the roots, do not be alarmed, as this will not injure the growth of the bush at all.

Pack the earth rather solid about the roses after the digging process. This may be done by tramping with the feet, or with a heavy tamper made of a piece of timber with a handle attached.

A little later the surface should be made somewhat loose by the use of a rake or short-bladed hoe.

Such treatment at this season will aid greatly in producing the finest display of roses you ever saw.

Vegetable Life Powerful

THIS photograph shows the enormous strength of a growing tree. The American Forestry Association of Washington, D. C., by whose courtesy it is



The tree split the rock and grew up in its natural shape

shown, vouches for the genuineness of the case. It is not simply an instance of a tree growing through a crack in the rock.

The picture was taken in the Mesa Verde National Park of Colorado, and shows a rock split by a piñon tree. This is a species of pine tree sometimes known as a nut pine.

Cases of this kind illustrate in a forceful manner what is taking place continually on a smaller scale. Small plants, including even the mosses, are slowly reducing the most resistant minerals to fragments, then to sand, and finally to fertile soil.

Sawdust for Hotbeds

By A. F. Heidlebaugh

AFTER having more or less trouble with the surface of my hotbeds becoming hard and baked, it occurred to me that sawdust would answer the purpose for surfacing hotbeds which were to be used merely to start plants that were to be soon transplanted. Last year I made use of decaying sawdust for this purpose.

I found that the little plants developed a larger root system in the sawdust than when the surface of the hotbed was garden soil. Celery plants when one inch high had balls of roots as large as a hen's egg. These plants, after transplanting to open ground, made an unusually tall and strong growth. Tomatoes, cabbage, peppers, and other garden plants grew the largest bunches of roots in the sawdust I ever saw.

I also used decaying sawdust to refill the pots in which ferns were growing. The influence was almost magical, causing a lot of new shoots to start where formerly the ferns were almost dead. I shall make another trial of sawdust for surfacing my hotbeds this spring.

Test for Soil Dryness

EARLY gardens are desirable, but the soil can easily be injured by working it too wet. Here is a test endorsed by the Government which applies to all kinds of soil. Take a large handful of the soil and make it into a ball. If this ball readily falls apart the soil is dry enough to be worked without danger of puddling and later baking.

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Good Health Talks

By DR. DAVID E. SPAHR

Motherhood

MANY a young man and many a young woman, having pledged their troth, are starting out in life to carve out for themselves a new home, an honored name, and perchance a fortune in this busy world.

In the selection and preparation of their future home, they are, unconsciously perhaps, making provision for the coming of the sweet little cherubs that bless and brighten home life.

The anticipation of an event of this kind occurring the first few years of the married life of the inexperienced, modest, and timid young people causes the coming event to assume much importance. It is liable to excite grave and sometimes morbid apprehensions.

To allay these unnecessary fears, and to give some helpful hints that may be of benefit to those who are fulfilling their God-given mission in the world, is our excuse and purpose for invading the privacy of these homes with some statements of advice. We come into these homes as a friend, and we hope to gain and hold their confidence. We hope that anyone will feel free to consult us at any time.

Remember, that motherhood is a perfectly normal condition, and as such should be subject to no disorders except such as are purely accidental. It is a truism, however, to state that the variations from the normal are sometimes numerous. These are the penalties we pay for being civilized. Those who live in a state of nature, as the wild animals live, are not, it is true, exempt from all disorders during the pregnant state, but the number of them who suffer is relatively smaller, and their sensitiveness to suffering is far less acute, than is generally the case with women living in civilized communities.

Nature cares for her own, but often requires our assistance along natural lines. Assistance can usually be given when it is needed, and that should relieve the minds of the prospective father and mother.

Stomach Trouble

I have suffered with stomach trouble for five years. In the morning I have a bad taste in my mouth, tongue thickly coated white. I had a bad case of gastritis. The nerves of my stomach are affected. I have sparks before my eyes, and black specks, also dazlings.

Mrs. D. W. P., Maine.

TAKE one or two tablets of cascara compound (Hinkle) at night, followed in the morning, before breakfast, by a teaspoonful of phosphate of soda in a glass of water. After meals you should take a teaspoonful of Horsford's acid phosphates in water.

Tapeworm

Miss G. J. C. of Iowa gives a long, clear description of her stomach trouble. Her voracious appetite, nervousness, restlessness, sleeplessness, severe headache, dizziness, sickness at stomach. When she has great craving for food she cannot control her appetite. She feels like there were something in her bowels that was sapping her strength, and she gets weak and breaks out in a cold sweat. Then if she will just eat a little something she is immediately relieved.

YOUR diagnosis of tapeworm would be complete if you had ever passed any of the joints, but you say you have not. It seems a question, then, between a gastric or duodenal ulcer and tapeworm. You do not mention, however, either of vomiting or passing blood, which is a cardinal symptom in ulcer of stomach. I will withhold my diagnosis until I hear further from you.

Paralysis Agitans

I suffer with shaky nerves. My hands and my whole body sometimes tremble. It is much worse when I am excited or have company. What can I do?

Mrs. W. A. F., Kansas.

PHYSICAL and mental rest and fresh air will be helpful; also lukewarm baths and mild massage.

To Cure Ear Soreness

My little son has had a discharge of pus and blood from his ear for twenty-one months, dating from a case of sore throat (possibly scarlet fever). I would like to know what to do for it. I live on a homestead forty miles from a doctor.

Mrs. J. B., Canada.

WASH it out as you have been doing, and then drop five drops of the following into his ear, night and morning: Acid borie, 10 grains; aqua. alcohol, of each 4 drams. Mix.

E.W.

Thank You—

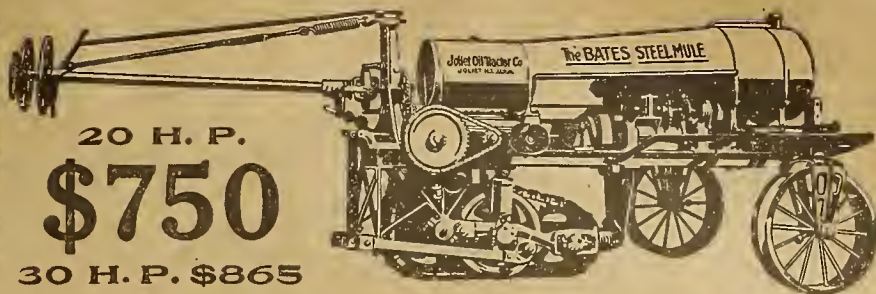
Nearly 260,000 times since October, 1915, I have been called upon to say "Thank you." 260,000 in round figures represents the number of friends of Farm and Fireside who have sent us their subscriptions during the past five months. Many of them were new subscribers, but the majority were old friends who renewed for another year or more.

Nothing would please me more than to be able to write a personal letter to each one of these 260,000 friends, acknowledging their subscriptions and telling them how much we Farm and Fireside folk appreciate their support. Just stop to think what it would mean, though—260,000 letters in a period of five months,—an average of 52,000 letters per month—2,000 per day—250 per hour. It would require the services of 25 expert stenographers each writing 80 letters a day. A little item like \$5,200.00 for postage wouldn't worry us much but think of having to lick 260,000 stamps, let alone the envelopes!

Even though it is out of the question to write a personal note to each one of you who renewed or sent us a new subscription, we want you to know that your patronage and support is appreciated. The label on your paper will show that the subscription was promptly entered. We hope to have you with us again next year—and the year after that and—well, as long as we deserve it.

Yours truly,

The Farm and Fireside
Subscription Man



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He sits right on the three plows, away from the heat of the engine, where he can watch both plows and "Mule" without turning his head.

One Man Does the Discing

He pulls a double disc with a two section harrow behind at a good speed without packing the ground.

One Man Does the Drilling

He sits on his grain drill where he can watch both drill and "Mule." He pulls two sections of harrows behind the drill.

One Man Cultivates Corn, Cotton, Potatoes, etc.

He sits on a two row cultivator and does an even, thorough, quick job. The "Mule" guides easily, turns short and does not pack the soil.

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He sits on the binder where he can watch both Binder and "Mule" move through the heaviest grain at a fast, steady gait. The "Crawler" makes a path for the Binder Wheel when going through mud.

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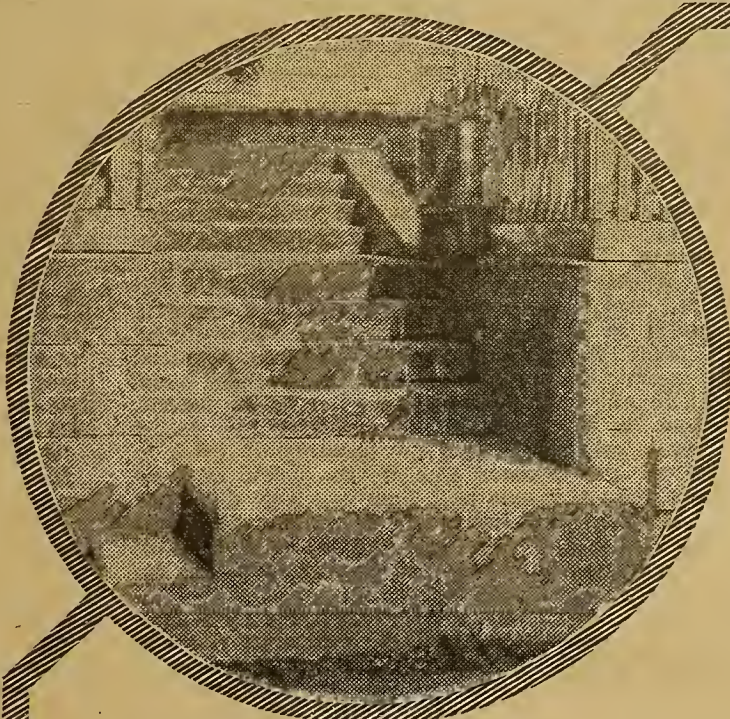
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Mountain Mazie

A Thrilling Story of Ambition, Love, and Bitterness

By J. L. SHERARD

AS THE shadows began to deepen in the valley, Daddy Loggins got up stiffly from the slab bench by the cabin door, ran his bony hands along the curve of his spine as if to smooth the creaking joints, and then shuffled down the rough mountain road, rifle in hand, to meet Mazie.

That she would take first prize at the tomato show he had not the slightest doubt, for never had human eye seen such a productive plot as she had cultivated with the labor of her own hands, and he wanted to show his appreciation of the honor by going forth to meet her and give her a welcome home.

Mazie was daughter, mother, and sister all rolled into a composite domestic creature dangerously approaching human perfection. Alone she tended her daddy's mud-daubed log cabin; alone she made his bread; alone she washed his clothes; alone she planted and hoed his corn and beans and cabbage; alone she rubbed the pain out of his rheumatic joints; alone, in the quiet of the day, she read to him and tried to soothe the wild restlessness of his soul. Cheerfully she did all the thousand and one little things, and more, that his increasing petulance seemed to demand. All this tedious round of service she traveled without a murmur, for she loved Daddy, and Daddy loved her. That was reason enough.

Daddy's spirits ran high as he ambled along, with a marked elasticity of step, to meet his daughter—his baby. He was conscious of a deep stirring of pride in the girl, and once or twice his grimy fingers left a smudge on his tanned cheeks as he wiped away a vagrant tear.

His thoughts rambled aimlessly at first, round and round like a crazy path encircling the mountain, then veered to a definite point of his mental compass.

The latent fires of forty years of pursuit by "revenuers" burned brightly again, fanned into momentary flame by the torch of bitter memory. The court records stamped him as a bad man. They declared his iniquity in terms of black and white—and figures. Again and again he had gone quietly away for a stay behind gray walls of stone "down the country," and under the strain of it his wife had died, and under the shame of it his children had left him—all but Mazie. He was intensely grateful for the dregs of comfort saved from a bitter cup.

For Mazie's future, Daddy had worked and planned secretly. Never a word had he spoken to her of his dreams. But always uppermost in his heart's desire was a union between the girl and young Jud Tinsley, a promising crown of achievement in store for him which would in some measure, he felt, wipe out many of the grievous stains of the past.

True, like himself, Jud was labeled as a "bad man" in the court records, and he still on the sunny side of twenty! But, for all that, Daddy felt no sense of shame or displeasure against Jud. He liked the boy. He looked upon him already as a son. He entertained high hopes of what the audacious young chap could do to baffle the ancient enemy—the Law; for Jud was the human replica of Long Tom Tinsley, Daddy's partner in making the devil's brew, but now long since departed on the last journey by virtue of an officer's bullet.

Daddy's hopes were rooted in a burning diabolism. Except for a soft spot carefully nurtured for Mazie, his heart had hardened into the flint of unrelenting hatred. He prayed blindly to an intangible goddess of fury that in Jud there would arise a new and stronger soldier to bear the red banner of a perverted personal liberty—the sole heir and champion of outlawry!

Around the sharp point of a projecting mountain spur came into sudden life a long forgotten sound, the honk of a motor car bumping its way over the rough road, rudely jarring Daddy out of his reverie. Involuntarily the old man shrank back into a clump of laurel skirting the roadside. He hated the sight and sound of an automobile, his only ride in one having been upon a day when a guard met him at the train and whirled him swiftly to the little city of gray stone walls.

FOR once Daddy's keen ears had deceived him. The car was nearer than he judged when it sounded its warning, and before he could disappear into the sheltering bush Mazie's sharp eyes detected him.

The car came to an abrupt stop.

"Climb up, Daddy, and we'll make room for you!" called Mazie, waving a gay streamer above her head. "See! I've won the grand prize!" She held up a heavy bag of white canvas.

The man's eyes rounded in a blank stare. He was not surprised that she had won first honors, but somehow the unexpected manifestation of it overwhelmed and unnerved him—left him dumb and sent a chilling fear into his heart.

Mazie fondled the bag caressingly. "Gold, gold, Daddy!" she explained tautalizingly. In proof of her success she had shrewdly decided that nothing could convince her father more surely than the sight of the actual glittering coins. As the gold made small volume, she wisely exchanged half of it for big shining silver dollars. Daddy's mind was incapable of grasping the full significance of a mere announcement. It demanded concrete examples.

"Gol, gol!" echoed the man feebly, and the magic word revived him like a dash of cold water in his wizened face. "I might 'a' knowed you'd git it, Mazie." His lips quivered in an effort to speak further, but his voice trailed away in a faint inarticulate sound, half groan, half chuckle.

The county superintendent of education, who was driving the car, assisted by Miss Byrd, the teacher and organizer of the tomato clubs, and Mazie, lifted the unwilling guest into a comfortable seat and drove on, deaf to Daddy's muttered protest. At the cabin the

superintendent left Miss Byrd and Daddy and the girl, and with profusely uttered excuses for his haste trailed his way back to the county seat in a small cloud of dust.

THE teacher knew how to lead. In every community of the mountain country she had organized clubs for the cultivation and preservation of fruits and vegetables, for teaching domestic economy, for the improvement of health and sanitary conditions, for the betterment of country life, all these functions of service culminating in the grand purpose of arousing the latent ambition of girls of limited opportunities and giving them a chance to break the shackles of needless slavery. These community organizations, extending over many States, had been designated "tomato clubs" for the reason that each member was required to set apart a small plot, usually a tenth of an acre, for the cultivation of this common but substantial article of food, under the stimulus of liberal prizes for the best yields.

In the beginning Daddy had given a sullen consent for Mazie to enter the contest, actuated solely by reasons that would have driven her out of it had she known the truth. A hundred dollars' prize money, together with perhaps an equal amount derived from the sale of the tomatoes and by-products her industrious hands were sure to "put up," would give the girl a dowry large enough to enable her and Jud to be married. Mazie was seventeen. What sense was there in further delay?

Luckily for the girl's peace of mind Daddy Loggins had maintained as much secrecy in guarding his plans for Mazie as the girl had employed in covering her own plans for herself, and that was the main reason no trouble or difference of opinion had ever arisen between them. For years the quaintly dressed mountain girl had been a weekly visitor to the housekeepers of Clayton, selling all the chickens and eggs she could spare, and now, thanks to the new world of opportunity opened to her by the club woman, the savings-bank account immediately jumped to four hundred dollars, besides the hundred she had just brought home from the tomato contest to convince her doting father.

Impelled by the necessity of mauling her secret plans, Mazie was forced into the anomaly of living in two separate and distinct worlds—the world of hard experience, where hands and eyes and legs did their work mechanically in the round of daily duties, and the world of life and sweetness and joy calling softly to her in visions of the day and beckoning to her insistently in dreams of the night.

Seventeen! Just the age to go to boarding school, the goal of her new-born longings; but what was she to do with Daddy? She could not leave him even if the sacrifice should blast every hope of the better life. Would he go with her? Would he? The question convulsed her heart in a sudden fear. That he would fight her decision, she knew instinctively. The crisis was at hand. She must speak. But, anticipating that her courage might fail her utterly, she had induced Miss Byrd to spend the night with her and act as her spokesman and intermediary.

The teacher prepared a tempting supper. After the dishes had been cleared away the three sat in the moonlight on the old slab bench in front of the cabin.

"Hit's erbout time Jud was gittin' home," ventured Daddy by way of subtle inquiry.

"Oh, he'll be here in a little while," Miss Byrd replied. "We started him ahead of us. You see, he had to drive the cart home by himself, as Mazie wanted to ride in the automobile—she'd never ridden in one, you know."

"I—I thought you'd 'a' stuck to Jud better'n that," Daddy spoke up in tones of peevishness. "In my judgment a ox cart beats yore devil shebang all ter splinters, an' then Jud tuck you down thar, y'know. 'Pears ter me it warn't treatin' him right. But I reck'n," he added as a stabbing after-thought, "you was erashed ter ride with Jud that-er-way a'ter all them high doin's an' prize-winnin's."

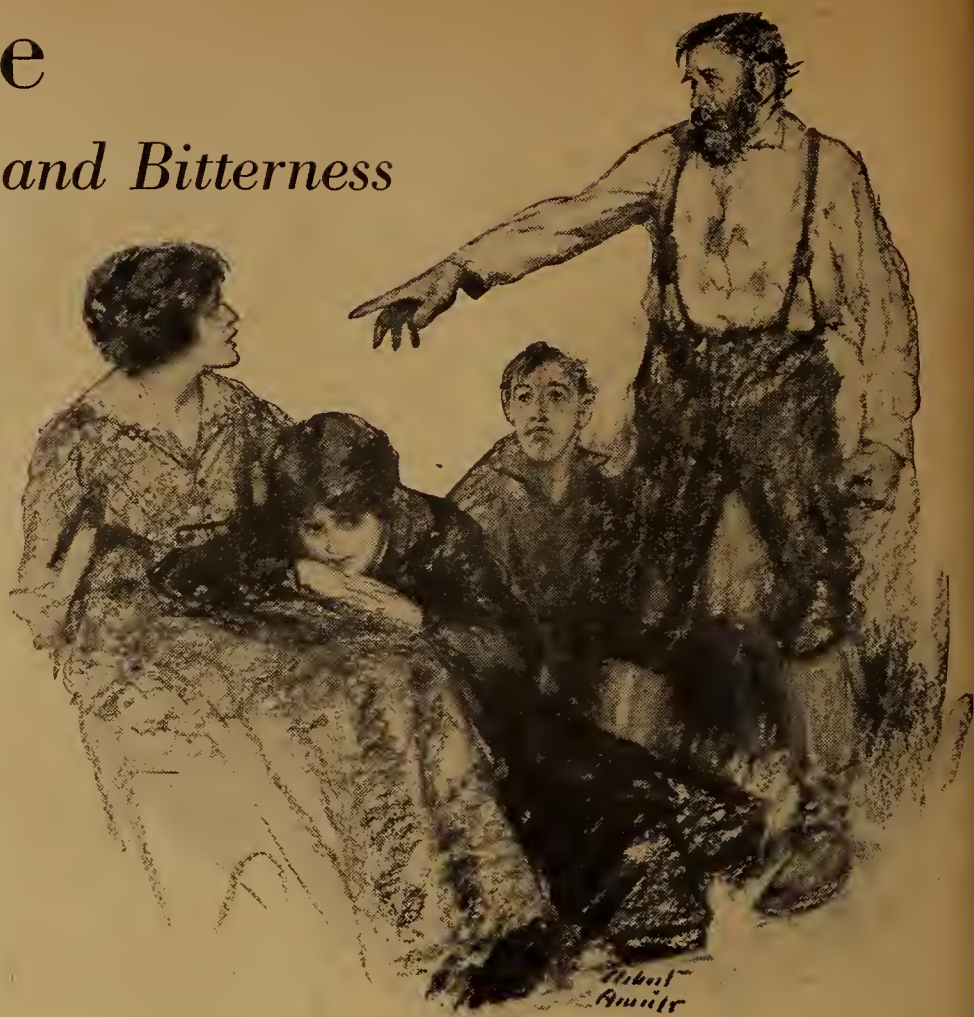
Mazie swelled in quick resentment, subsided as suddenly, and cast appealing eyes at the teacher, a plain signal to change the subject.

Miss Byrd laughed merrily, a soothing, escape-valve sort of laugh.

"Don't blame Mazie for it, please," she said. "It was really I who first suggested it. Why, dear me, a victory like that entitled her to a coach and six! We couldn't get it, you see, so we took the next best thing we could lay our hands on."

Daddy lit his cob pipe and smoked in silence. Though he made no effort to speak his thoughts, every movement of his tense body translated keen resentment.

The teacher waited patiently until the last crumb of home-made twist melted into ashes in the bowl of the odorous pipe. After the smoker had knocked his pipe clear of ashes on the corner of the cabin, Miss Byrd cleared her throat nervously as a prelude to the



"An' you—you meddler, you witch, lay the tip of yer finger on her an' I'll—I'll kill you!"

battle that had to come. Mazie, wide-eyed and shrinking from the ordeal, had slipped like a limp and lifeless thing to the feet of the woman where she sat overcome by a growing feeling of hopelessness, resting her head protectively against her benefactor's knees.

"Mazie is a fine girl, Daddy," the club woman began, entering boldly on intimate ground. "She has reached the age at which she deserves a better lot than she has. She ought to be in school. A most splendid mind she has, and she is ambitious to make her mark in the world. Since winning the first prize in the tomato contest, she has money enough, with what she had already put in the savings bank, to give her a good education—that is, with the assistance we will give her later on through our college aid association. Yes, we'll make you the proudest man in the whole mountain country when we have finished with your little girl."

A SHADOW fell slantingly across the grass. The teacher ceased talking for a moment and turned her head to meet the intruder. There at the corner of the cabin, looking calmly down at her, stood a young giant of a man, tall, keen-eyed, unruffled, sneering, a rifle slung carelessly across his shoulder, an ugly pistol half concealed in the holster at his side.

"Jud!" Mazie shrank closer to the teacher, half burying her head in the folds of her skirt.

Miss Byrd, calm and undismayed, spoke to the boy kindly. Jud slouched to his knees without speaking, then sprawled at full length on the soft grass, his hands clasped pillow-fashion under his bushy head.

The speaker renewed the attack.

"Of course, Daddy, you'll let her have her way. It's the only fair and square thing to do. Understand, you'll still live together and be together in town—in town, do you hear? Everything is ready for you, rooms and all. Mazie says she'll never give you up or leave you. She'll be in a position to take even better care of you there, the dear child! Speak up, Daddy. In the new life you will have rest, peace, comfort, happiness. What do you say? Will you let Mazie grow up and be happy, or will you keep her here in these bleak hills, a neglected and drooping wild flower?"

To this earnest plea Daddy did not reply. He sat silent, his head thrust forward at a rigid angle, the muscles in his lean jaws working convulsively. Jud lay stretched on the grass as before, making no sign.

Miss Byrd interpreted Daddy's silence as a retreat from his position. Eagerly she pressed the advantage she had apparently won, sweeping away objections he did not make, with an eloquence he did not heed.

"Then it's settled!" The teacher clapped her hands triumphantly as she announced the verdict she had made for him.

"Settled!" Daddy leaped to his feet with the agility of a cat, forgetful of his stiffened joints. "Settled? No! No! You lie!" Madly he shrieked his defiance. "My Mazie, my baby, she's mine ter keep, an' you—you meddler, you witch, lay the tip of yer finger on her an' I'll—I'll kill you! No, you sha'n't steal her away an' spile an' ruin her, like yer kind does. I tell you, Mazie's goin' ter marry Jud an' stay here an' stan' by him while he fights fer our rights. Ain't it so, Jud? Keep yer miserable p'ison out of Mazie's mind, an' let Jud have her 'thout puttin' fool ideas in her head."

Jud sprang to his feet and came forward, his arms folded serenely across his chest, a sinister smile of triumph on his face. He looked not unlike a beast of the jungle calmly teasing its prey before seizing it.

Daddy's outburst quickly spent its fury. Miss Byrd preserved an outward coolness, though her heart was beating a tumultuous tattoo and she felt cowed and defeated. Mazie closed her eyes as if submissive to whatever might happen.

"Speak, Jud—son!" commanded the old man confidently.

"Of co'se, you're mine, Mazie," Jud spoke with masculine tenderness. He held out his hand to lift her up. "Come!"

The girl pushed his hand from her. "Come!" Jud repeated with harshness. Mazie made no response. Then, the spirit of the primitive cave man rising predominant, the young man seized her and held her at arms' length like a helpless plaything. He set her down in front of him. "Come!" His voice was stern, commanding.

Still the girl made no move to obey. She stood uncertain what to do, breathing heavily like a frightened animal. All at once a feeling of courage coursed through her body, sending the hot blood tingling in her veins. The stare of terror slowly faded from her blue eyes and in its place came the glint and sparkle of indignation.

"Come!" Jud's tone was of a timbre that defied further opposition. He placed his hand on her shoulder. "Come!" His face flushed angrily.

In seeming obedience to his command Mazie came closer to him, raised her hand and—struck him a stinging blow in the face.

"That's my answer!" She ran quickly into the cabin and bolted the door.

NOT the least of Jud's traits was an iron stoicism. He said nothing, showed nothing of what he felt, but the teacher knew only too well what a seething caldron of passion was boiling within him. She shuddered for her own safety. Jud drew a forefinger across the tiny trail of blood on his cheek, examined it quizzically in the moonlight, then whirled abruptly around on his heel, facing with a surly scowl the woman who had beguiled the serpent into his Eden.

"You'll have to pay the price for this!" he threatened, pointing an accusing finger at the woman. "It was you—"

Daddy interposed with a firm hand before he could say more, and drew him away to the corner of the cabin, where they entered at once into earnest conversation, the old man talking very excitedly.

The door opened cautiously. Mazie called. Miss Byrd was glad enough to escape into the house, though she began to feel that she was shut into a helpless prison with the girl the moment the door closed behind her.

The cabin had but two small rooms, divided by a thin partition, and into one of these Mazie lost no time in escorting her guest. They felt safer there, as it belonged to the girl, and its privacy insured them against intrusion. Outside the voices rose and fell, wrangling, agreeing, arguing, threatening, but only at rare intervals were those inside able to catch a word, and even then it was without meaning to them.

After perhaps two hours of plot or struggle—they knew not what—between the men, they parted. Jud's slow steps they could hear as he walked away with a diminishing thud-thud on the hard gravel. Daddy entered his room, bolted the door, and stretched himself on his hard bed without removing his clothes.

Mazie slept, the strain and excitement of the day being too much for her mind and body to withstand. Her guest would not have slept even if her nerves had relaxed their dreadful tension, for she became convinced, as she lay there in the black stillness of the room, that her situation might be one of imminent peril. She needed her faculties too badly to lose them in sleep.

In the early hours of the morning the wind suddenly shifted around to the east, bringing with it a marked fall in temperature. The scant covering on their bed was not sufficient now, and the teacher arose noiselessly and placed it in double folds over the body of the sleeping girl to keep her warm. Vainly she searched in the dark for the long coat she had brought with her, only to recall at last that she had left it, with her hat, veil, and gloves, in the room where Daddy lay sleeping. There was no help for it, and she made up her mind bravely to shiver in calm resignation until dawn.

DADDY got up early. She heard him lumbering about the room long before the first purple streaks began to shoot in streamers above the eastern skyline. He built a fire; then, after warming himself, unbolted the door and left the house.

As the sound of his footsteps died away Miss Byrd tiptoed noiselessly into his room to get her coat. To her dismay, she could not find it. It had disappeared from the bare room most assuredly, for the poverty of its furniture could not conceal it.

Where was Daddy going? Was he up to some trick or deception? Cautiously she pressed her face against the door and peered through a narrow crack. Day was breaking. What she saw engulfed her thoughts in a sense of mystery and alarm. There was the man going down the zigzag path to the spring at the foot of the hill, bucket in hand, and clad in the long coat, hat, and veil that belonged to her!

It was chilly and he really needed the coat, but what meant the hat and the veil? Was it some fanciful whim of old age? Or was the man crazy? Ah, yes,

that was the solution. He had suddenly gone crazy under the strain of what had happened the night before.

A panic of fear seized her. She must get away at once lest he should return to do her harm. Her mind was engrossed momentarily in a solution of the best means of escape. She took a final peep through the door to see if he was coming back.

Daddy had reached the spring. He dipped the pail into the water, placed it on the rock curb, and then straightened himself to his full height. The pose was hers in almost every line and gesture. It was as if she were gazing into a mirror, beholding her own image. It seemed very grotesque; it fascinated her.

Suddenly the crack of a rifle jarred the stillness of the morning air, echoing in exaggerated sound along the valley. Daddy threw up his hands, his body spun half around, and then he fell face downward upon the ground.

Far up the mountain slope, on the other side of the spring, a wisp of gray smoke floated slowly upward.

The teacher jerked open the door and ran into the yard, her keen eyes following a human form creeping up the bush-studded cliff. It soon reached the crest, where it turned and looked back, for an instant outlined in clear relief against the morning sky.

It was Jud! The shadow figure melted away quickly behind the ridge and was gone.

Miss Byrd retreated and sought the refuge of the cabin. She sank weakly on the stone step, staggered and completely baffled by the mystery of what she had just witnessed. A note of tragedy seemed vibrant in every sound—in the falling of a nut from a tall hickory, in the breaking of a twig in the brush where the cow was grazing, in the harsh call of a flock of noisy crows winging their flight across the valley.

THE truth came suddenly into her dazed mind like an inspiration. Ah, how plain and simple, and terrible, the meaning of it! It was she whom Jud wanted to kill—she who had entered his primitive Eden and driven him from it with the flaming sword of knowledge.

The long night wrestle of the two clashing souls she fully understood in the light of what had happened. Daddy had been unable to win the boy away from his mad purpose, and doubtless, as he lay silent and writhed in the little bare room through the dreary hours of waiting, a clearer vision of his duty to the girl had come to soothe his troubled mind and to dispel the blackness of his own thoughts.

Thus in the stillness of the morning, calm and unafraid, Daddy had chosen to take the long journey so that he might save a life and set another free.

Miss Byrd brushed away a tear and went softly into the back room to answer the call of Mazie.

Better Than He Thought

By Edgar L. Vincent

JUST a word caught in passing: "Yes; the crops were a good deal better than we thought they would be one while."

Sure. Isn't it always so? It rains today. No sign of the blue anywhere. Horses standing in the barn. Hired men pottering around, putting in their time the best they can. The plow out there under the shed, and water running a little river in the furrow. This doesn't look much like a crop, does it? And on and on it rains—forty days and forty nights, such as old Noah had in his time. How it does send the cold chills down a fellow's back! The blues? Blue is nothing to it. The blacks—everything as dark as a pocket, and yesterday hope was so big!

But to-morrow—ah, the joy of it! Great lines of corn in the shock, bins fairly breaking down under the weight of wheat, cellars full, barns full, cows doing well, the best ever, in fact, and only peace in the heart.

Queer, we do not more readily catch the truth that things always turn out better than we thought. Seems as if we might, when we have the story told over and over again so many times. Last year it was so, and the year before, and so on as far back as we can remember. Seems as if we should by this time see that all things turn out for the best in the long run. How it would brighten this old world if always we might be like our laddie! When the clouds hung thick all over the heavens and the rain was pelting down, he would creep out to the horse block, or higher still, up some little tree, and watch. By and by down he would come and scamper into the house.

"I can see the blue sky way off yonder. It's going to stop. Come out and see!" Come out and see. Right now. Nobody ever knew a time when the rain did not stop; and then how the sun and the old earth did tug at the corn crop! They brought it through all right, too!



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Old Dutch



Swat the Fly Early

By Mina Rowe

MUCH discussion has made us familiar with the work of the common housefly. A few years ago there were questions sent out in all the principal cities of this and other countries which put the matter before us quite clearly. Here is the list, with a few slight changes:

Where is the fly born? In manure and filth.

Where does the fly live? In every kind of filth.

Is there anything too filthy for the fly to eat? No.

Where does he go when he leaves the vault and the manure pile and the spittoon? Into the kitchen and dining-room.

What does he do there? He walks on the bread, fruit, and vegetables; he sticks in the butter; he swims in the milk.

Does he visit the patient sick with consumption, typhoid fever, and cholera infantum? He does, and may call on you next.

Is the fly dangerous? He is man's worst pest, and more dangerous than wild beasts.

What disease does the fly carry? He carries typhoid fever, tuberculosis, and summer complaint. How? On his wings and hairy feet. What is his correct name? Typhoid fly.

Did he ever kill anyone? He killed more American soldiers in the Spanish-American War than all the bullets of the Spaniards.

Where are there the most cases of these diseases? Where there are the most flies.

Where are there the most flies? Where there is the most filth.

Why should we kill the fly? Because he may kill us.

How should we kill the fly? Destroy all the filth about the house and yard that we can; pour lime on the rest; kill him with a wire screen paddle or sticky fly paper or kerosene oil.

Kill the fly in any way, but kill the fly.

The mosquito is closely allied with the fly. His favorite breeding place is stagnant water; an uncovered rain-barrel is all he wants to grow and thrive.

Recipes

Coffee Cake—Cream together one cupful of granulated sugar with a lump of lard the size of an egg, then dissolve one level teaspoonful of soda in one cupful of clabber milk, one teaspoonful of bak-

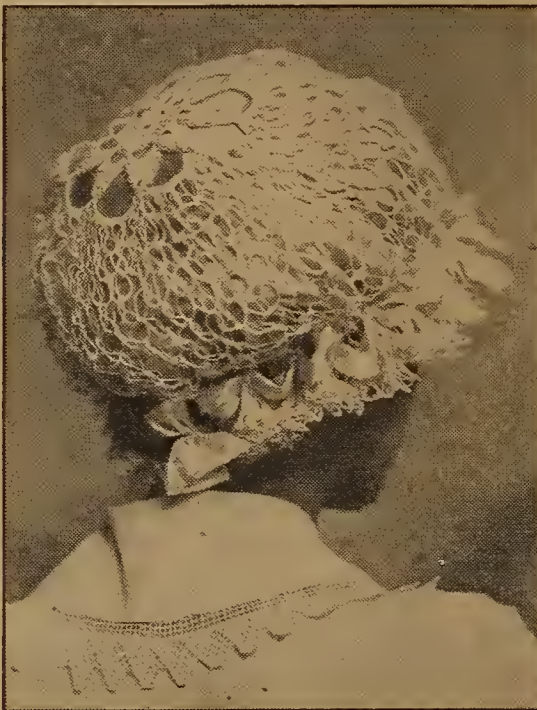
ing powder, and enough flour to make dough stiff enough to spread. This will make enough for three cakes. Then take two heaping tablespoonfuls of sugar, one tablespoonful of flour, and a piece of butter, rub together, spread on top, sprinkle with cinnamon, and bake in a hot oven. These are nice to make when eggs are high. Mrs. L. Z. H., Ohio.

Nut Bread—Beat one egg and add two cupfuls of milk. Into sifter put four cupfuls of flour, three-fourths cupful of sugar, four teaspoonfuls of baking powder, one teaspoonful of salt; add one cupful of nuts. Butter pans well and let stand until it rises twice its size. Bake forty-five minutes. Mrs. I. L. C., Nebraska.

Good Sausage—Cut the sausage meat desired size for chopper. Weigh, and spread on clean cloth. For every fifty-five pounds of meat add one pound salt and six ounces of black pepper. If wanted very hot, add a little red or cayenne pepper. Sprinkle salt and pepper over the meat, mix well together, and run through the chopper. If you wish to keep sausage for several months, make it into cakes and fry, pack in agate buckets or small stone jars, and cover with melted lard. Mrs. V. V., Virginia.

The Housewife's Club

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To Fry Beefsteak—As I have never seen my way of frying beefsteak in print, I shall send recipe that others may use it and be as well pleased with it as I am. First pound the steak real well. (I use a small tack hammer.) Dip into cold water, then roll into flour, and fry immediately in fresh lard that is smoking hot. Salt and pepper as soon as put in the pan. Brown on one side, turn and brown on the other, then lift from the pan and immediately serve while hot. This may be a little more trouble, but the steak is so tender and juicy that one feels well repaid. N. B. S., Idaho.

Lincoln Cake—Mrs. N. B., Missouri, asked for a cake recipe containing cornstarch, and Mrs. L. A. S. of Connecticut sent this one:

One cupful of butter, two cupfuls of sugar, one cupful of milk, two and one-half cupfuls of sifted flour, one cupful of cornstarch, three eggs, two teaspoonfuls of baking powder, one teaspoonful of vanilla. Beat well. This makes two loaves.

Baked Apples—Six large apples,

one cupful of sugar, brown or white, one tablespoonful of flour, one tablespoonful of butter, one-fourth teaspoonful of cinnamon. Remove the cores from the apples, fill the centers with this mixture: cream the butter and sugar, add the flour and

cinnamon, and mix well. Bake until soft. Baste with the rest of the sugar, dissolved in a little hot water. There should be a rich thick gravy around the apples when done. Delicious with or without cream. P. E. H., North Dakota.

Household Hints

To Clean Aluminum Ware—Aluminum ware may be cleaned by washing in hot water with plenty of soapsuds. It may be polished with a paste of jeweler's whiting which has been sifted to remove hard particles. Paste may be made with soapy water or water and alcohol, or water and ammonia. Add to the whiting, spread paste smoothly on surface, and polish with soft cloth or chamois skin.

Nickel and silver are polished in the same way. Any good metal polish may be used.

If the stain is very bad, polish with some good scouring soap.

Discolorations may be removed with a very dilute solution of nitric acid. Never use alkalis, such as washing soda or potash, in cleaning aluminum. E. J. P., Florida.

Temporary Dyeing—My pink crepe-de-chine waist faded out to a dirty white. I took a sheet of pink crepe paper and soaked it in water for a few minutes. I dipped the waist in this and hung it on a coat hanger to dry. The waist looked like new when it became dry. Since that time I have done the same thing to a blue waist and find that it keeps them fresh and new looking. The color lasts only for two washings, but it is a matter of five minutes' work to have them fresh again. G. B., Minnesota.

Kerosene in Starch—When you make your boiled starch next wash day, try pouring a little bit of kerosene into it. The odor evaporates quickly, and you will find that when you come to iron your starched clothes the starch will not stick to the flatiron. L. B., New Jersey.

Discolored Enamel Ware—To remove stains on blue and white enamel ware simply fill the discolored vessel with water and a teaspoonful of chloride of lime; allow this to boil a few minutes; then rinse and dry and the enamel will be snow-white. E. J. P., Florida.



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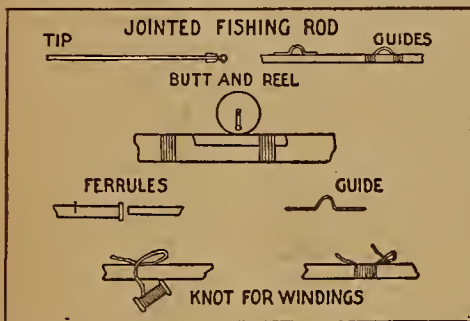
By A. E. Swoyer

THERE probably never was a boy who did not want to go fishing; who was not more than willing to stop work or study at any time and head for the nearest brook where the speckled trout lurk in the big pool below the mill-dam or the near-by pond where the wily pickerel and the gamy bass hid beneath the lily pads. At any rate, if there were such a boy he would be of very little interest to either you or me.

Second only to the joy of actual fishing is the fun of getting ready. There is lots of pleasure in making your own tackle, for instance, and in having something a little different from the other fellow's. You take a greater pride in such home-made things than you would in the most expensive outfit bought in the stores. You have the sport of making them, and they will catch fish just as satisfactorily.

Making a jointed rod is not nearly so difficult as it might at first seem, although the greatness of the task depends a great deal upon how you go about it. That is, if you want to make a fine rod, such as would cost from \$10 to \$15 in the stores, you must buy the wood and fittings ready to put together. These parts will cost several dollars, and great care must be used in the making or the expense will have been for nothing. If, however, you are content to make a rougher looking affair which will catch fish as well as a more handsome rod, neither great skill nor costly materials are necessary.

First, procure a small bamboo rod between six and eight feet long. This should be as straight as possible, and



will cost not over 15 cents. As it is best not to have too many joints in the rod, either saw the bamboo in half or into three pieces of equal length—the former for a two-piece rod and the latter for one in three parts. Next, go to the hardware store and have them cut brass tubing for you to form the ferrules. There will be two ferrules for each joint, one of each pair being of such a size as to fit tightly into the other, and each piece about two inches long. Needless to say, they must be of a size to fit the parts of the rod to be joined. These parts must be whittled down, nicely smoothed with sandpaper, the ferrules driven on and held by a small wire nail driven through each and into the wood. If you happen to have a small drill, use it to make a hole for the nail in the brass; if you have not, you can thin the metal with a file so that the nail will penetrate it easily. The rod when put together should now fit tightly in all its joints and should be straight.

Thin Wire Used for Guides

The next step is to make the guides, or wire loops, through which the line is to run. Thin, stiff wire is good for this, or a heavy hairpin will serve admirably. For the guides bend a piece of wire about one inch long into the shape shown in the drawing; then, by pushing the ends towards each other, force it into a spiral. This makes the so-called "snake" guide which is now used on the better rods. The tip guide, or top, is formed by twisting a hairpin until it makes a loop; the straight sides are used to bind it to the wood.

Both guides and tip are fastened to the rod by windings of waxed linen thread. There is a knack in doing this which is not difficult when once mastered, and which results in a firm and workmanlike job. It is necessary first to form a loop of the thread along the rod as shown in the drawing; then, by revolving the rod, wind as many rounds as you may wish over the loop. When through, cut off the thread and slip the loose end through the loop. A pull on the other thread will then draw this end under the windings and hold it firmly without any knot showing. Care should be used not to pull the loop clear through, while to make the windings easier the guides may first be fastened to the rod with a touch of glue. When finished, all loose ends should be cut off short and the windings given a coat or two of shellac or varnish.

The reel may be fastened to the rod in a number of ways. One of the usual methods is to have two brass rings fitted over the butt of the rod, one being fastened and the other running loose. They should be a little larger than the rod, so that one end of the base plate of the reel may be slipped under the fixed ring and

Our Boys and Girls

the other ring slid over the opposite end of the base plate. If the rings are of proper diameter the reel will be held firmly and yet may be removed in an instant when desired. A still simpler method is to fix the reel permanently to the rod. To do this, mark off the position the reel will take upon the butt and cut the wood away until the reel rests flat and firm. It may then be fastened either by drilling holes through the base plate and screwing it to the butt, or by fastening it with windings of thread exactly as you did the guides.

While it hardly pays to make your own reel, since they may be bought at prices ranging from a few cents up, you may wish to have the satisfaction of knowing that the complete outfit is your own handiwork. If that is the case you will need a medium-sized spool and two pieces of sheet metal or galvanized iron cut as shown in Figs. 1 and 2. The ends of the first piece are bent up as shown, so that there is just space for the spool.

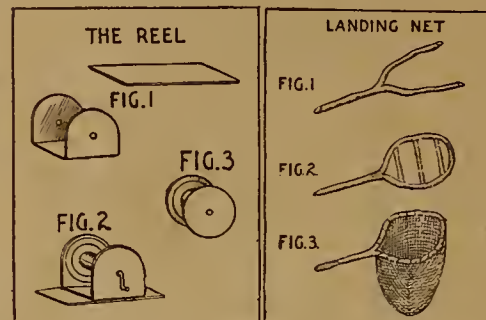
Reel May be Bought

The other piece, or base plate, is then soldered or riveted on. If you cut notches in the base plate just where the frame of the reel crosses it, the ends of the plate may be bent into a curve so that it will fit snugly to the rod. To mount the spool, first plug the hole in its center with a piece of soft wood, and procure a piece of wire about two inches longer than the spool. Put the spool in position and force the wire through the spool and the holes in the metal until it has gone through far enough to keep the spool from slipping out and to serve as an axle; then bend the free end into the shape shown, for a handle. Such a reel may be fixed to the rod in the same manner as the bought kind. It is not hard to make, but it is not as satisfactory as the kind that you can buy for even, say, 15 cents.

A landing net is a necessary part of every fisherman's equipment, and yet is the easiest of all to make. It is only necessary to secure a crocheted branch of some flexible wood to form the frame. Either common mosquito-netting may be used for the net proper, or it may be made from cord properly knotted. First, peel all the bark from the wood and work it down smooth and even; then cut the two branches off so that they are equal in length and long enough to form a frame of the size desired. This is best determined by holding them to the shape desired in the hands before cutting. Then whittle away a portion of the ends of each so that when they are joined they

will form a neat joint of the same size as the rest of the wood, and bind these ends firmly together. At the same time wind the end of the handle, just where the limbs branch off, firmly with cord so that it will not split.

To shape the net, spread the loop with crosspieces of wood notched at the ends, and put it behind the stove to dry. In two or three days it will have taken this shape permanently. But as this drying-out will also shrink the wood it is well to tighten the windings, both at the joint and the crotch. At the same time the end of the handle may be wound with cord in order to give a good grip. While



this completes the ordinary net, a great improvement in appearance may be made by staining the wood and giving it a coat or so of varnish. The net itself, if of mosquito bar, must be cut out and sewed together to form a tapering bag. It is a good idea to bind all edges, as well as the seam, with tape. When completed, the net is fastened to the frame by lashing on with cord, as shown.

There are of course many other items of the young fisherman's kit which may be made at home at slight trouble and expense, but these may be safely left to your own ingenuity. Thus, an excellent minnow bucket may be made from two pails of different sizes. The smaller should have numerous holes punched in it, and the larger should have a piece soldered about the rim so that the smaller will not rattle about when set into it. The minnows are carried in the inner bucket, which may be taken out and hung over the boatside when fishing. This gives the minnows fresh water and keeps them alive.

In a similar manner a creel may be improvised from a sack or small basket fitted with shoulder straps; a tackle box may be easily put together from light wood, and so on.

While it may be that your first attempts at making fishing tackle at home may not result in things of beauty, this

will not interfere in the slightest degree with their catching fish, and as you progress you will do better. At any rate, you will find such work a very pleasant pastime, and the results, however crude they may be, will repay the effort expended.

Try out these suggestions, and then write to the editors of FARM AND FIRESIDE and tell how you got along.

Car Brings Pleasure

By J. R. Rickard

THERE are at least two things that most people are looking for—health and pleasure. If we use it right the automobile can give us both. For pleasure there is no conveyance that I know of that can compare with the automobile. To get the greatest pleasure out of it get your family or friends in with you and take them out for a ride in the cool of the evening; or, better still, start in the morning and put in a full day.

To get the best out of it we must always remember that safety comes first. Reckless driving does not bring pleasure.

New Puzzles

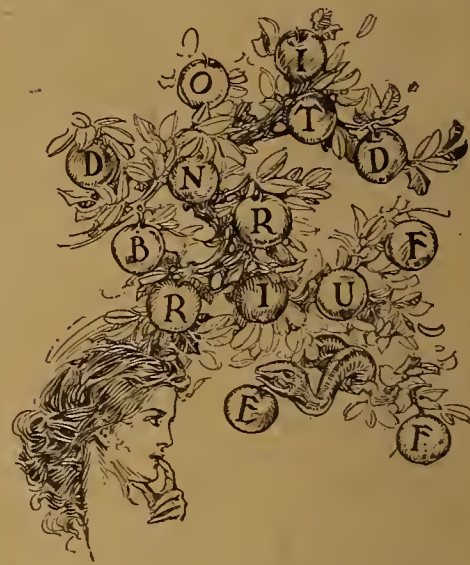
Riding Against the Wind

Here is a timely March problem which will interest the school children as well as those of a larger growth who are figuring out the influence of the winds on aerial navigation:

A bicycle rider went a mile in three minutes with the wind, but returned in four minutes against the wind, which precipitated an exciting discussion as to what his speed would have been if there had been no wind.

Anagrammatic Apples

In olden times, as we were taught,
— in an orchard grew;
Eve ate thereof and havoc wrought—
Her thoughtless act she lived to rue.



Can our little friends tell what words are left out, by combining the letters that appear in the picture?

Answers to Puzzles

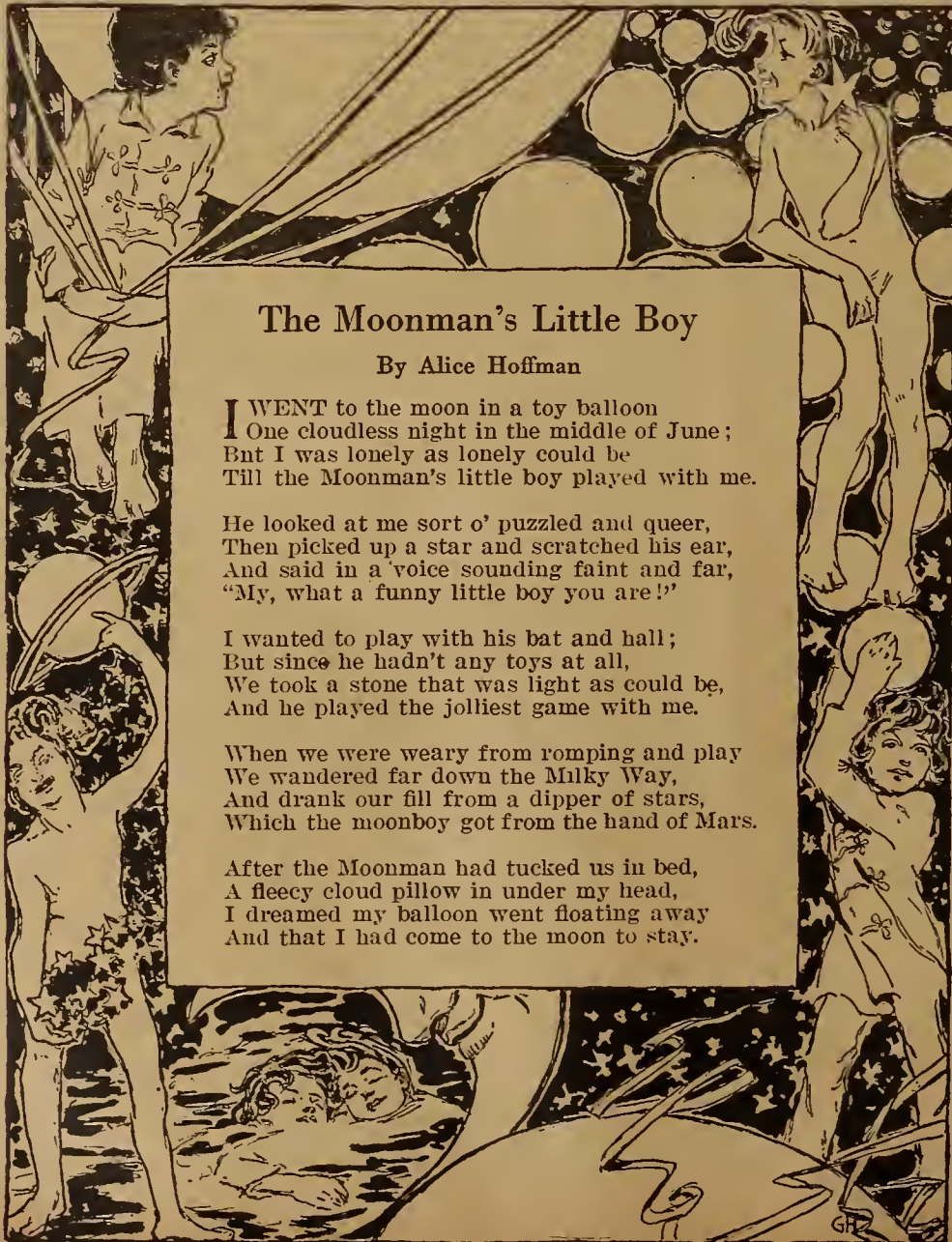
Puzzles Printed Last Issue

Arithmetical Problem

In the Marble Puzzle, the number that George had left is one fifth of the whole number, or two fifths of his original number. The original number increased by twenty is six fifths, and twenty is one fifth, of the original number. Therefore, each of the boys must have started with just one hundred marbles.

Switch Puzzle

The black and white cars may be reversed in their positions by the following moves of the engine: Engine runs out to the right on track D, reverses and runs on track C, coupling to white car. Returns to track D, reverses and backs out on track D to left of track A. Engine then runs up track A, pushing black car into switch B. Engine uncouples and returns to track D. Engine alone runs out on track D to right of track C. Reverses and backs up track C to couple to black car. Engine and black car return to track D. Engine hacks up track D and couples white car onto black car. With both cars engine runs out on track D beyond track C, then hacks white car on to switch B and leaves it there. Returning to track D, the black car is left on track C. The engine, returning to track D, backs out to the left of track A. Running up track A, couples to white car and pulls it on to track A. Engine alone then hacks out on track D and runs forward to resume its original position, between track A and track C.



The Moonman's Little Boy

By Alice Hoffman

I WENT to the moon in a toy balloon
One cloudless night in the middle of June;
But I was lonely as lonely could be
Till the Moonman's little boy played with me.

He looked at me sort o' puzzled and queer,
Then picked up a star and scratched his ear,
And said in a voice sounding faint and far,
"My, what a funny little boy you are!"

I wanted to play with his bat and ball;
But since he hadn't any toys at all,
We took a stone that was light as could be,
And he played the jolliest game with me.

When we were weary from romping and play
We wandered far down the Milky Way,
And drank our fill from a dipper of stars,
Which the moonboy got from the hand of Mars.

After the Moonman had tucked us in bed,
A fleecy cloud pillow in under my head,
I dreamed my balloon went floating away
And that I had come to the moon to stay.

Motor Power



Seat Covers for Comfort

CLOTH seat covers are made for all standard styles of cars, and are of great service in protecting the upholstery. They are usually made to button over the cushions and the backs of the seats and bear the wear and tear of daily use. When the covers become soiled they can be cleaned, and freshen the car wonderfully.

In summer the light-colored seat covers absorb the heat less, have no pockets to collect dust, and are more comfortable than the upholstery. For long trips they are almost indispensable.

How Light a Tractor?

A GOOD deal of impatience is abroad in the land over the weight of farm tractors. The light-weight automobile is held up as a model of mechanical efficiency, and the question is raised, "Why aren't the tractor manufacturers as smart as the automobile folks?" It's a good question, but unfortunately several laws of nature stand in the way of the feather-weight farm tractor.

A light automobile uses its full power only rarely, but relies on its momentum to carry it part way up a steep hill or over bad places in the road. Momentum is the product of speed and weight. Increase the speed and you can reduce the weight.

That will work all right on the boulevard and the pike where there is little resistance, but plowing at 20 miles an hour, disking at 30, and cultivating at 40 would be altogether too exciting. Farm machinery must operate at comparatively low speeds. Besides, a tractor is made to pull loads and not to carry them.

Just as the resourceful Scotchman made his little horse pull a heavy load up a steep hill by weighting him down with a sack of grain, so the farm tractor needs enough weight to give it the full advantage of its power. Nearly every conceivable kind of ground-gripping device has been tried, and the most successful are now in use. As a result, effective medium-sized tractors now weigh less than 500 pounds per drawbar horsepower, or about half as much as the horseflesh required to do the same work.

As a matter of fact, tractors are lighter in proportion to their power than is generally supposed. To further reduce weight without increasing speed would reduce the tractor's working value. Somehow it's hard to imagine a tractor scooting around a headland on one wheel, or skidding around the corner of a wheat field with a binder in its wake.

Autograms

AN AUTOMOBILE made in 1645 in Europe derived its power from springs.

Steam stage coaches were in operation in England in 1820, but they were noisy and were legislated out of business.

The real beginning of the automobile business was made in America between 1892 and 1896.

Cars with plenty of clearance and equipped with oversize tires operate most easily on rough roads.

Cars equipped with tire chains can operate through dry snow up to 18 inches deep.

To be thoroughly master of an automobile know how it is made and how to adjust and repair it.

A well-trained horse slows down when going around curves or approaching crossings. Make the auto do likewise.

Governor Adjustments

By J. S. Jacobs

THE governors used on ordinary gas engines are of the fly-ball type. Some run upright and some horizontal, but they are one and the same in mechanism. The question that so many do not understand is why a governor is sensitive to a variation of load and speed.

Do you remember when a boy that you took a ball with a string to it and whirled the ball around, holding to the string, and the faster you whirled the ball the more it pulled on the string? The engine governor is worked out on the same principle—in fact, is one and the same thing. The balls are held in place with a spring and are connected to a throttling valve.

Some of these valves are held open by

a latch until the engine is up to speed, and then the governor trips the latch and closes the valve until the engine begins to slow down, and then the governor opens the valve again. This type of governor is called the hit-and-miss.

Another type of governor is called the throttling governor. This kind increases and decreases the amount of fuel according to load, to keep an even speed.

Attention should be paid to the springs, as they sometimes weaken and throw the governor off time. In a coil spring a coil may be cut out, or if the coil is already too short it may be taken off and the coils pulled out and placed back on the governor. Where an engine is used much, it is a good plan to buy a speed indicator and regulate the speed by shortening or lengthening the spring. Otherwise you can't tell whether the engine is running too slow or too fast.

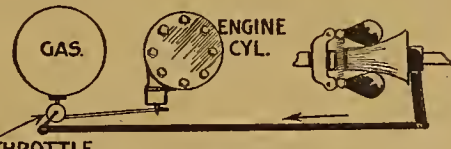
I am a gas engineer, and from what I have experienced the gas engine is abused more than any other machine because of lack of knowledge of its simple mechanism. Many say that a gas engine starts when it wants to and stops the same way. Such men should not try to run a gas engine.

In my years of experience when the engine refused to start or run I always found something wrong somewhere. But so many think if there is not a wheel off or broken shaft, the engine ought to run.



EXHAUST VALVE

In this hit-and-miss type of control, the governor opens the exhaust valve and allows the charge to escape instead of exploding.



THROTTLE
This shows how a throttle-governed engine works. When the load increases and the engine starts to slow down, the governor opens the throttle and admits a larger charge of fuel.

They do not realize that a wire sometimes gets loose or the sparking points of ignition become dirty. Such things as these kill the engine dead until repaired.

The Car's "Works"

[CONTINUED FROM PAGE 6]

been said you will observe that expensive cars are for the most part more highly developed and mechanically perfect than less expensive ones, and the difference is not altogether a matter of finish or size. Of course, there is better upholstery and a finer finish in the more expensive cars, but in addition you get a better grade of material all the way through, even from the wrenches that come with the car to a better engine, top, springs, lights, and self-starter. I like to think of motor cars as I do of watches. I can get a dollar watch which will go all right, but a higher priced watch is the more accurate and perfect mechanically, as well as having a finer case. There is no necessity for a 22-carat watch case, nor for an expensive automobile body, but the "works" must be of good grade to give satisfaction in both instances.

Some of the less expensive cars have not added self-starters and electric lights, but several concerns make starters and lighting systems that can be installed on cars which would otherwise have to be cranked by hand and lighted with oil or acetylene. Such outfits cost from \$75 upward, but the most satisfactory is to get a car made with a starter as a part of it. The first self-starters, which came out about six years ago, worked with compressed air, but the electric starter is more satisfactory.

There is a limit to the number of times a starter will start the motor in a given length of time. The batteries that drive the starting mechanism are charged while the car is running, and if you start often and drive very little you may have to get out and crank the car. Taxicab drivers and doctors who make short runs sometimes have this trouble, but for general family use, especially in the country, the self-starter will always do its work faithfully.

I am perfectly aware that learning about automobiles from books is not very satisfactory, so my candid advice to a person who wants to know all he can about the different machines before buying is to attend an automobile show. Go at an hour when there isn't a rush and ask questions freely. Ask the same question of different experts to get more than one opinion on the subject you want to know about.

EDITOR'S NOTE: Farm and Fireside will be glad to answer questions relating to automobiles or accessories. Address Engineering Editor, care of Farm and Fireside, Springfield, Ohio.

value plus!

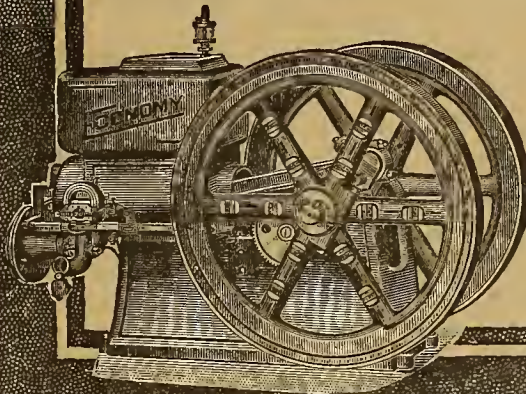
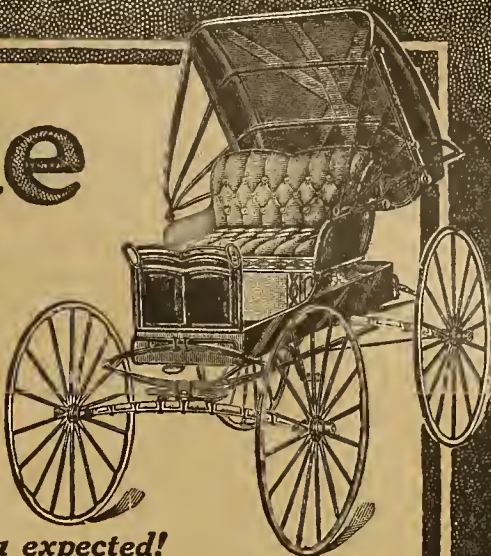
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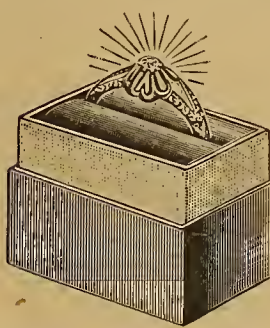
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A DIAMOND RING — FOR YOU —

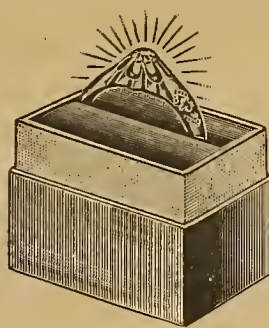
If there is one thing above all others ardently desired by the average girl or woman, it's a *Diamond Ring*. Many are forced by circumstances to do without it, and it is to these that our plan appeals.

JOIN OUR

DIAMOND RING CLUB



And we will not only tell you how to secure the much-desired ring, but will also help you to do so. This is a straightforward business proposition. For certain services you can render us in your spare moments we make you a present of the Diamond Ring. This is not a contest plan.



MANY GIRLS HAVE EARNED RINGS WHY NOT YOU?

Don't stop to wonder whether you had better join the club, write for particulars now. If the plan doesn't appeal, you can forget about it. It will cost you a postal card to investigate. Ask all the questions you wish, we will answer them cheerfully.

Address

THE DIAMOND RING CLUB

Farm and Fireside

Springfield, Ohio



Three Hundred Million Bushel Crop in 1915

Farmers pay for their land with one year's crop and prosperity was never so great.

Regarding Western Canada as a grain producer, a prominent business man says: "Canada's position today is sounder than ever. There is more wheat, more oats, more grain for feed, 20% more cattle than last year and more hogs. The war market in Europe needs our surplus. As for the wheat crop, it is marvelous and a monument of strength for business confidence to build upon, exceeding the most optimistic predictions."

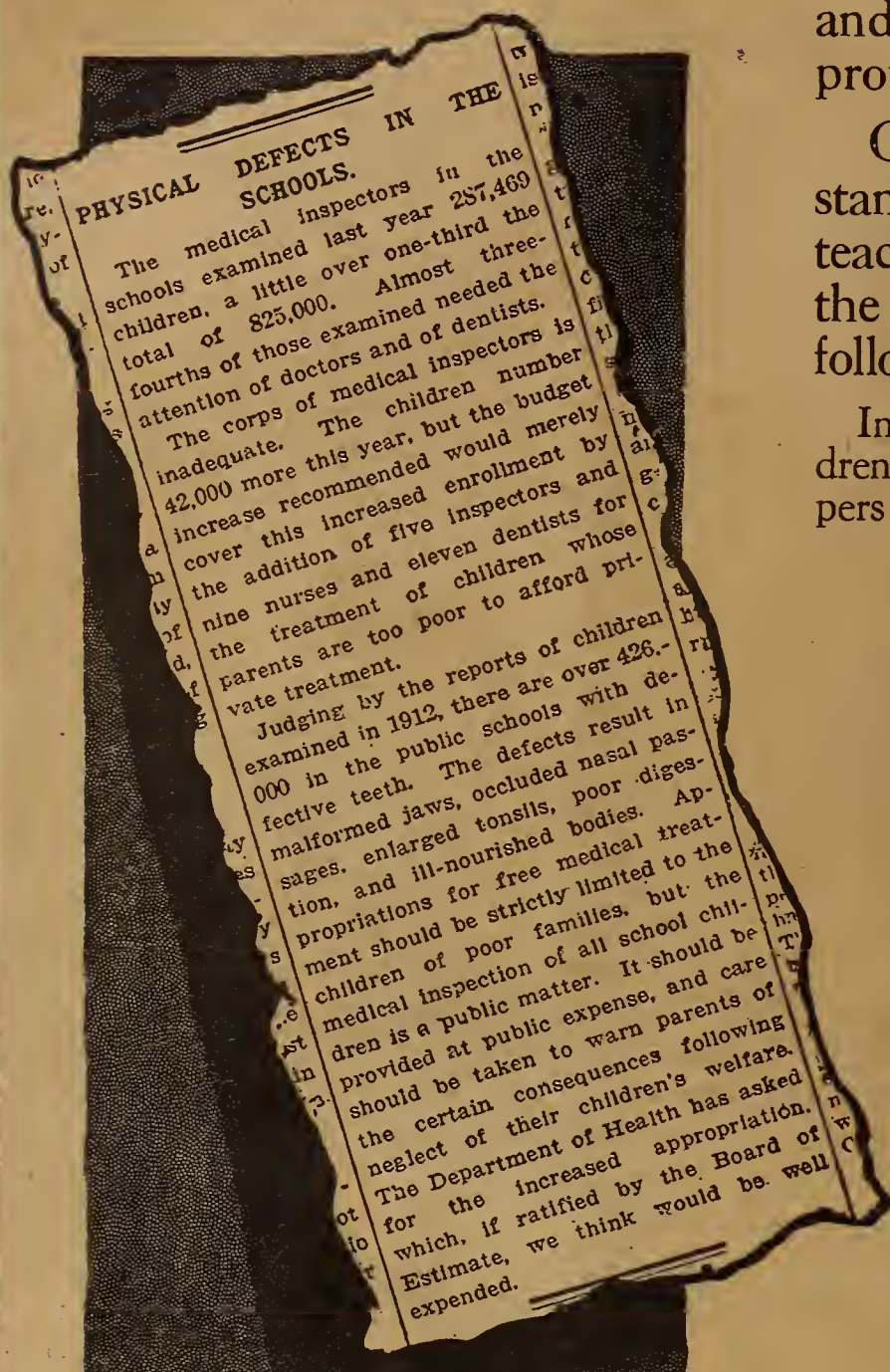
Wheat averaged in 1915 over 25 bushels per acre
Oats averaged in 1915 over 45 bushels per acre
Barley averaged in 1915 over 40 bushels per acre

Prices are high, markets convenient, excellent land low in price either improved or otherwise, ranging from \$12 to \$30 per acre. Free homestead lands are plentiful and not far from railway lines and convenient to good schools and churches. The climate is healthful. There is no war tax on land, nor is there any conscription. For complete information as to best locations for settlement, reduced railroad rates and descriptive illustrated pamphlet, address

M. V. McINNES, 178 Jefferson Ave., Detroit, Mich.
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Canadian Government Agent.

In Both School and Home, Care of the Teeth is a Duty



FROM THE NEW YORK
TIMES, OCT. 20TH 1913

and that it is a well-rewarded duty has been proved over and over again.

One school in Cleveland improved the standing of pupils nearly 100 per cent by teaching and insisting on proper attention to the teeth—and thousands of other schools are following the same line.

In homes all over the country healthy, happy children with good digestions, clear eyes and sweet tempers are proving the truth of the idea of

Good Teeth—Good Health

Your children's teeth—as well as your own—will be helped by the regular use of Colgate's Ribbon Dental Cream, the dentifrice that is delicious in flavor as well as being a safe, thorough and common-sense cleanser.

The Evolution of Dentifrices

It is a fine art to make a perfect dentifrice—one which will clean and polish without scratching; which will properly fulfill the meaning of the word Dentifrice—dental friction.

Precipitated Chalk made a great change

It was not so long ago that dentifrices generally contained infusorial earth, cuttle-bone, pumice and other bases, all far too harsh for the delicate enamel of the teeth which, when once injured, cannot be restored by nature. In time these materials were largely discarded and the less harsh precipitated chalk became the accepted base of the better dentifrices.

But all Precipitated Chalks are not alike

Colgate & Company, not satisfied with the best chalk to be bought on the open market, experimented in their laboratories until they had perfected a chalk free from sharp angular particles; a chalk that will cleanse and polish without scratching.

Colgate's base is safe

We make only enough of this for use in our own dentifrices—and, so far as we

know, we are the only manufacturers who prepare their own precipitated chalk. This is an evidence of the care used in making Ribbon Dental Cream.

And the advertising is truthful

In advertising—as in manufacturing—we choose scrupulously. What we say about Ribbon Dental Cream is as conscientiously examined as what we put into it. Efficiency with safety marks the making; efficiency with truth is the aim of the advertising. Every advertisement is written with the hope that after reading you will test the truth of the statement. As you do so, you have our word that it is true.

Colgate's Ribbon Dental Cream does six things—

- 1 Checks the growth of decay-germs.
- 2 Corrects an acid condition of the mouth.
- 3 Delights by its delicious flavor.
- 4 Cleans thoroughly without injurious chemicals.
- 5 Polishes the teeth to natural whiteness without harmful grit.
- 6 Leaves the mouth wholesome and the breath pure.



Ribbon Dental Cream is a complete dentifrice—you too should use it.

TO DENTISTS—send for complete information on our precipitated chalk.

TO THE PUBLIC—a trial size of Ribbon Dental Cream sent on receipt of 4c in stamps.

COLGATE & CO., Dept. 89, 199 Fulton St., New York

Makers of Cashmere Bouquet Soap—luxurious, lasting, refined.

Established 1806

More Than 600,000 Copies Each Issue

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FARM *and* FIRESIDE

The National Farm Paper - Every Other Week

ESTABLISHED 1877

5 cents a copy

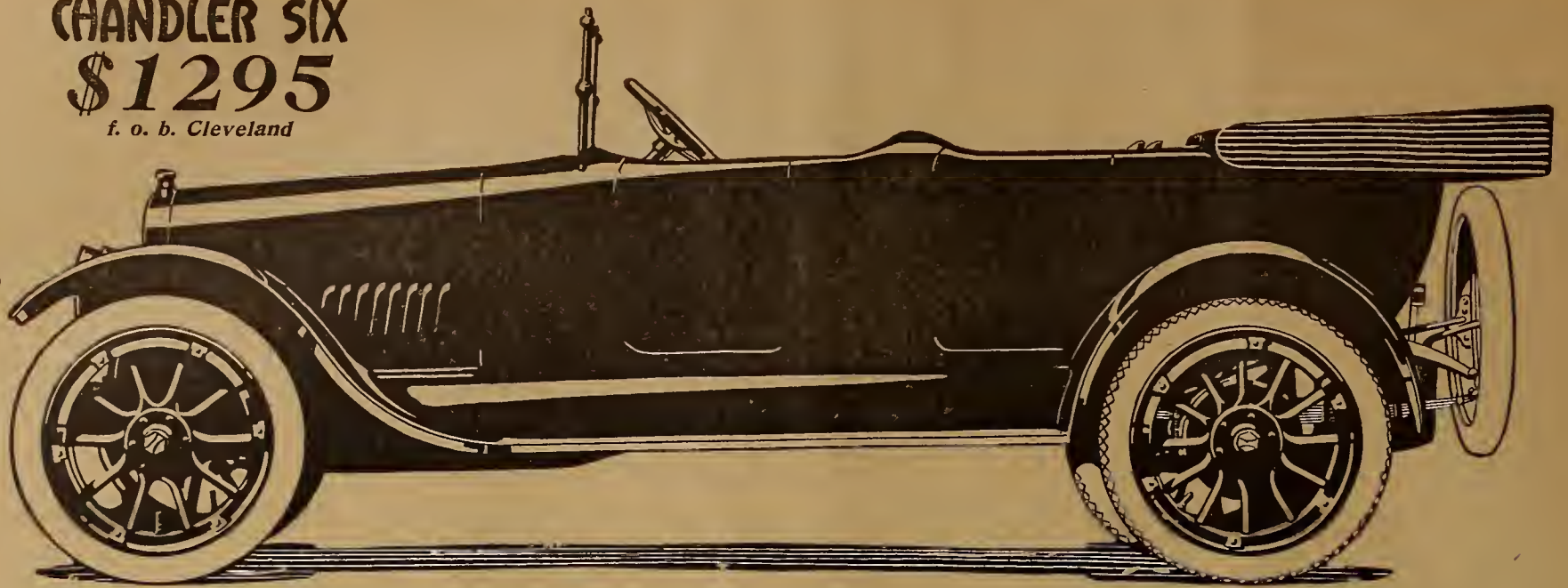
Saturday, April 8, 1916



PHOTOGRAPH BY C. A. PURCHASE

The Family Physician

The New and Greater
CHANDLER SIX
\$1295
 f. o. b. Cleveland



We Cannot Describe the Beauty of the New and Greater Chandler

IF YOU have seen the New Chandler touring car body you understand why we do not attempt to describe it. If you have not seen it visit the Chandler sales-room today and get a new idea of motor car beauty.

This new touring car is the most beautiful car of the year. There can hardly be any argument as to that. Someone having reason to be biased might dispute this, but you are unprejudiced—you will look with open mind for grace of line and beauty of finish—and you will agree with what countless thousands at the automobile shows have said very positively. They have said the Chandler is the most beautiful car of the year. So go and see it.

The walnut-paneled tonneau cowl has pleased the public everywhere. It will please you. It gives the car a very unusual air of complete finish. It reflects, too, the thought which the Chandler

Company gives to details throughout the car, inside and outside. And remember this, any type of touring body other than the Chandler tonneau-cowl type will be old-fashioned and out of date before the season is over. The old style design, with the backs of the front seats projecting abruptly above the body, looks odd even now.

See the Chandler. You will be delighted with the **style** of the car and you know **now** that you can **depend** on it mechanically—depend on it for all the power, speed, flexible control and day-in-and-day-out service that you could ask for in a car at any price.

For the Chandler chassis, distinguished by the marvelous Chandler Motor, has been proven **right** through three years of service in the hands of thousands of owners. It is free from any hint of experimentation, free from any hint of untried theory.

In spite of higher prices of all materials entering into it, the Chandler is still noted for highest quality construction throughout and the finest equipment.

Seven-Passenger Touring Car = \$1295
 Four-Passenger Roadster = = = \$1295

The New Chandler Catalogue illustrates the New Big Touring Car, the Four-Passenger Roadster, other body types and all mechanical features fully. If you do not know your Chandler dealer write us today

CHANDLER MOTOR CAR CO., 1904-1934 E-131st St., Cleveland, Ohio

FARM and FIRESIDE

—PUBLISHED BY—

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Published Bi-Weekly

So People Live Longer How a Kansas County Decreases Its Number of Deaths a Third

By HARRY M. ZIEGLER

FORTY-EIGHT fewer persons died in Riley County, Kansas, with a population of 16,500 in 1914, than died in the county in 1912, when the population was 15,792. The death rate for Riley County in 1912 was 11.3 persons for every thousand of population, or 178 deaths. This was decreased to 152 deaths in 1913, or 9.8 per cent to the thousand population. The death rate for 1914 was 7.9 persons for every thousand population, which was 130 deaths. The death rate to the thousand for Kansas is 9.8, which, according to a recent federal census statement, is the lowest death rate of any State that is conducting a state-wide health work.

The State Registrar of Vital Statistics of Kansas has not completed his 1915 report for the counties as this is written, hence it is impossible to give the 1915 death rate for Riley County.

Such a record as Riley County has made is possible only because the work has been in charge of a competent, progressive, and efficient man. Dr. J. C. Montgomery has been the county health officer, and has directed the health work of the county since it was started six years ago. Dr. Montgomery is successful in his work because he has taken the public school children and their parents into his confidence. Now after six years' work the school children as well as their parents are well informed about disease. They know the causes of disease and how to prevent sickness.

Since the health work was started the death rate for the county has not only been decreased greatly, but the people have been saved thousands of dollars in doctor and medicine bills, and everyone has been able to do better and more work because they have been enjoying health.

Spend Money to Prevent Disease

THE cost of conducting the health work a year has been slightly more than 6½ cents a person. And this isn't really an expense: it is an investment, because the saving in death losses, doctor and medicine bills alone is many times more than the actual money spent.

"Most of the people now consider that a few dollars expended for the prevention of contagious disease saves the expenditure of a large amount of money," Dr. Montgomery told me, "and the use of much time and skill to eradicate the disease. Many persons who some time ago ridiculed the health department and complained bitterly every time a few dollars of the public money was used to prevent disease now indicate not only a willingness but a keen desire to co-operate with the department. This assures greater results."

The county board of health, through its secretary and health officer, Dr. Montgomery, publishes quarterly a 20-page magazine which is filled with interesting articles and paragraphs about disease prevention. The board issues circulars about current health matters at frequent intervals. This is supplemented by the personal visitations of Dr. Montgomery. He gives illustrated lectures free of charge in all parts of the county throughout the year. A 40-minute lecture on sanitation and health was delivered in every school by him the first month of the current school year. The

EW



PHOTOGRAPH BY HOLT FEATURE FILM COMPANY

This is Dr. J. C. Montgomery, Riley County health officer, starting out on his mid-winter lecture-giving and school-inspection trip

newspapers in the county give much publicity to the health work by reprinting articles from the magazine, printing the bulletins, and publishing news about the health department.

"The county health department is not content with enforcing the usual quarantine regulations," explained Dr. Montgomery; "it is promoting sanitary conditions through regular inspections of buildings, wells, and grounds; it is keeping accurate detailed records of the results of such inspections; it is stimulating wholesome rivalry among rural schools in regard to cleanliness and sanitation; it is protecting the towns of the county against the possibility of an impure milk supply; it is educating mothers in the care of babies. Much attention is given at all times to health work in the schools. School inspections are made at least once a year. Inspection is made of the buildings and

grounds and surroundings as to the sanitary conditions. Each child before he enters school makes out a disease census card showing the diseases that he has had since birth. The teacher in each district turns in these cards to the health department. Whenever there is a transfer from one district to another the child's card is transferred to the district into which he goes."

The data on these cards show that out of 1,991 pupils enrolled in the county schools for the 1915-16 term, 1,123 had contracted whooping cough, 871 chicken pox, 829 measles, 428 mumps, 276 tonsillitis, 219 pneumonia, 192 scarlet fever, 168 German measles, 75 smallpox, 47 diphtheria, 41 were subject to rheumatism, 35 had contracted typhoid fever, 11 infantile paralysis, 3 tuberculosis, and 2 appendicitis. Ninety-eight had been vaccinated and 29 had had tonsils and adenoids removed.

Of the 1,429 children in the city schools, 1,030 had suffered from whooping cough; 990 measles, 801 chicken pox, 716 mumps, 302 tonsillitis, 219 scarlet fever, 151 pneumonia, 134 German measles, 83 smallpox, 63 diphtheria, 57 were subject to rheumatism, 39 had had typhoid fever, 10 infantile paralysis, 2 tuberculosis, 1 cholera, 1 appendicitis, and 1 rickets. Two hundred and thirty-seven had been vaccinated and 21 had been inoculated for typhoid fever.

In case an epidemic should break out in any of the schools, the health officer can easily ascertain by his records which of the children in the school should receive the most careful attention.

Officers Inspect Public Buildings

ALL owners of the public eating and lodging houses are required to fumigate their places every fall before cold weather. All of the school buildings and grounds and water supplies are inspected before the schools open in September.

When the county health officer visits and inspects all of the school buildings and grounds, he fills out data blanks that ask 55 questions. These cards are filed in his office. This is a means of cleaning up and bettering the healthful conditions of the schools. The

schools are all graded as to sanitary conditions. The best score made in 1915 by any rural school was 98.

"The health department's work in the schools is greatly aided by an organization of junior health officers," continued Dr. Montgomery. "One of these little health officers is elected by the pupils in each district, and he serves during the school year. A certificate is issued to him upon his complying with the rules and regulations. He co-operates with the teacher in looking after and maintaining cleanliness in the schoolroom, the outbuildings, and the playground, and reports to the teacher anything that needs correction, and through the teacher to the health department. The junior health officers are provided with a shield-shaped silver badge of their office, bearing the inscription 'Junior Health Officer,' and the district number. To these officers the department each week sends circulars, which they in turn read in the schools in the respective districts. These are bulletins pertaining to diseases, sanitation, and how to improve the health conditions, personal and public. The department also has [CONTINUED ON PAGE 13]



PHOTOGRAPH BY HOLT FEATURE FILM COMPANY

The girls of the schools are taught the care of babies. Miss Grace F. Harris, one of the public-health nurses, is using a doll to illustrate a point in a lecture

Swatting the Fly

Summer Outlaw Dies When Campaign is Made Against It

By B. D. STOCKWELL

THE fly is largely a family proposition. No one person in the household can do very much along the line of fly control without the help of all the rest. And this is none too early a time for the family to get together in council and decide whether to have a flyless home or submit to the constant buzzing and tickling and biting of the pesky insects from sunrise to sunset, and especially during meals.

In spite of his millions of numbers the fly is not invincible. In some cities where fly campaigns have been conducted in a systematic way, flies are now rarely seen. In country districts the proposition is somewhat harder owing to the considerable number of breeding places, such as manure piles, swill barrels, and occasional dead animals in which flies naturally breed. Even dishwater thrown on the surface of the ground leaves enough solid matter to attract flies.

In any effective campaign to control flies, the most important step is to screen all windows and doors that are to be opened and closed to any extent during the summer. Without screens all your fly poisons, sticky fly paper, and swatting are largely a waste of money and effort.

I have tried various substitutes for first-class screens, such as mosquito netting and adjustable sliding screens that are set in the window opening and the sash then closed down on them. But netting sags when it is rained on, and then soon has holes in it large enough for flies to get through. The sliding screens are not likely to be fly-tight; they also stick and warp, and have the bad habit of falling out of the window. Besides, flies sift in through the space between the upper and lower sash when the lower sash is raised enough to use the adjustable screens.

While such screens are vastly better than none, the only kind which I have found to give perfect satisfaction are full length screens which fit the entire window frame fly-tight. With a full-length screen you can open either the upper or lower sash or both, according to the kind of ventilation desired. Nor can the most clever flies find their way in. With single-sash screens (sometimes called half-screens) flies often find the open space between the window and the top of the screen when the lower sash is partway open.

Making full-length screens is not a difficult task for the man handy with tools. Mortised frames are best, but perfectly satisfactory screens can be made by using corner irons, which cost about two cents apiece. Cypress is the most durable wood for screens, but under most conditions yellow pine that is kept well painted will last a lifetime. Besides, it can be dressed down smoother than cypress, and does not check as easily. For the side rails and top of the screen use 2x1-inch pieces, and for the bottom of the screen a 3x1-inch. A horizontal crosspiece in the middle should be used on large screens to prevent them from bowing in. A good way to make the corners is to notch the side rails at the ends about half their width and make the notch long enough to receive the ends of the top and bottom rails. This will enable you to nail through the edge of the side rails into the ends of the top and bottom rails.

Use the largest nails that will not split the wood. A good plan is to drill small holes and then use penny finishing nails. Then put on the corner irons flat against the corners on the inside, and the frame will be plenty strong.

The most practical method of hanging full-length screens is to use screen hangers of the bracket sort. The screen is easily lifted on or off by simply swinging it out and raising it up, no tools being required. These hangers cost about ten cents a pair, including hooks on the inside for holding the screen shut. A professional job of screen-making calls for a rabbeted groove in which the screen is tacked and which then receives the molding. But this groove may be dispensed with if a flat and small molding is used.

Galvanized Screen Most Practical

FLY screening is commonly made in three grades, namely: painted, galvanized, and bronze. The painted screen costs about two cents a square foot, galvanized about three cents, and bronze screen about six cents. Barring rough handling, the durability of a screen depends chiefly on its ability to resist rust. In dry climates the painted screen does very well, and if kept well painted will last for perhaps five years. Galvanized screen cloth is most suitable for regions of average humidity, and is well worth the difference in cost. I have used galvanized screens for many years with complete satisfaction.

Bronze screen cloth is used mostly for seaside homes, where the salt air would corrode other screen quickly; also for the better class of hotels and for

mansions. While bronze screening is very durable, its excessive cost hardly justifies its use for the average residence. Galvanized screening is usually the best investment. I have found that home-made screens cost about a dollar apiece, including lumber, screening, hardware, and painting. The labor of making and hanging them is worth about a dollar.

Satisfactory screen doors are hard to make, and had probably better be purchased. The better class of them for back doors costs about two dollars, and for front doors somewhat more, since front doors are usually wider and of better quality. Where children use a screen door very much, put some crosspieces where they push on it, otherwise the screening will soon be damaged and loosened. The same warning applies to screens that are pushed open by dogs.

Having screened the doors and windows, arrange to close up stovepipe holes and fireplace openings. Some people with well-screened houses spend hours of time swatting flies which pour down through such openings. How the insects manage to find their way down chimneys is a mystery I have never been able to solve, but the open fireplace, especially, lets in regiments of them.

Methods of controlling flies out of doors around the premises are numerous, but here are some especially good ones. To kill the fly maggots in manure dissolve two pounds of iron sulphate in a gallon of water and sprinkle on the manure. It will completely deodorize it, and will not lessen its fertilizing value. The amount mentioned is sufficient for the manure of one horse per day, and will cost about two cents. Another way is to make a dark manure pit of concrete or keep the manure in a dark shed. Flies rarely breed in the dark. Haul the manure to the fields frequently, and spread it thin so it will dry quickly.

Flies from the ordinary outhouse are the most dangerous. Make the outhouse pit fly-proof on the outside and sprinkle road dust or fine ashes over the contents every day. In addition keep a fly trap near-by, and also screen the outhouse to prevent flies from escaping.

Modern plumbing, which many farm homes now have, is an important step in fly control. When the sewage goes into a tight cesspool or septic tank, it is inaccessible to flies.

Rats and Mice

Rodents Eat a Lot of Grain a Year

By G. L. ROTHGEB

RATS and mice! I wonder how many of us realize what costly luxuries rats and mice are. Occasionally we see statistical reports that rats and mice do so much damage a year or per capita, but we are apt to pass it by with the thought that the other fellow is paying our share of this tax—but is he?

Is there a farm absolutely exempt from this loss? I think not, though some have this pest under better control than others. Rats are particularly objectionable, not only for what they consume and destroy but on account of their disease-spreading proclivities. How can we control them? By using concrete floors wherever possible; by keeping very little litter or piles of lumber around the premises, and by keeping a good cat and dog.

Now, Mr. Sheepman, don't get excited. I said a good dog. Keep the right kind of a dog, and know where he is every night just as you do your horses, cows, and

hogs. It is very little trouble for you to have a place for your dog to sleep, and to see that he is there every night. Have the kennel close to the house so the dog will warn you in case of intrusion, prowlers, or fire.

When we husk corn in the fall we seldom tackle a shock that does not contain mice, and sometimes a rat. The same is true when hauling in shocks of wheat or oats. Now, if there is no dog to destroy these boarders, there will be a considerable increase from year to year.

One good cat around the average farm is sufficient. Feed it a little milk at the barn at milking time, but let it rustle for its meat ration. In addition to your dog and cat, trap wherever you can, and if necessary use poison. First place some food without poison where the rats will find it. Do this a few times, and after they are used to it, add the poison.

Other things which help in keeping rats and mice under control are buildings erected in a rat-proof manner. Metal and tile corncribs are well worth considering if you are going to build a new one. To make an old granary proof against these pests you can put jacks under it and set it up on concrete blocks. Small grain rooms may be lined with small-mesh wire netting. B. J. Lloyd, surgeon of the United States Health Service, says that rats annually eat up foodstuffs worth \$100,000,000, and that rat-proofing a building is as important as making it fire-proof.

The poultry business especially suffers from rat depredations, and I have known people to be driven out of the business because they were unable to protect their young chickens from rats which would burrow up under the coops. If the time and energy expended in nailing little pieces of tin over holes were employed in making cement floors, such conditions would stop.

To Foil 'Skeeters

Good Drainage Aids in the Fight

By JOHN COLEMAN

THE mosquito is a bloodthirsty insect. Some varieties live from the nectar of flowers and the juices of certain plants, but the kind we know prefers a meal of human blood. We usually get best acquainted with mosquitoes during July and August, so I was rather surprised to notice a half a dozen of them on my cellar window last January.

That seemed out of the ordinary, so I got to studying the mosquito history, with these results: Cold weather will kill mosquitoes, but great armies of them manage to live over winter in cellars, stables, caves, and other dark, damp places that will protect them from freezing. They may become active in the middle of warm days, but feed little or not at all during the entire winter. Besides the full-grown mosquitoes that live over, a good many eggs come through the winter un-killed, and hatch during the warm days of spring.

Mosquitoes will breed anywhere that water stands. Marshy land is their favorite place, but even in flower vases in the house, in the footprints cattle leave about a watering trough, they will breed as long as there is a thimbleful of water in them. Roof drains, cisterns, tin cans, broken bottles, and especially rain barrels, harbor big families of "skeeters."

The first thing to do is to drain every thing that will hold water. Mosquitoes lay eggs in the water, and the wrigglers that come from the eggs breathe through a little tube they thrust through the surface film of the water. You can kill nearly all of these wrigglers by oiling the water. A pint of oil will effectively cover a water surface of 250 square feet. Kerosene is generally used, but any oil will do, as long as it spreads easily on water.

This oiling process must be repeated about every three weeks in midsummer. In the spring and fall the interval can be lengthened. The most practical way of dealing with mosquitoes around the house is to screen them out. Ordinary fly screening has 12 strands of wire to the inch. But screening to keep out mosquitoes needs 14 or more wires to the inch.

Among the best mosquito repellants are pyrethrum (Persian insect powder), camphor-phenol, oil of citronella, and a good smudge. The first three can be secured at a drug store.

A smudge may be a heavy smoke that is fully as offensive as the mosquitoes or, on the other hand, it may be just enough to keep the mosquitoes away and permit those near it to enjoy the cool of a summer evening. An old iron kettle makes a first-class receptacle for the smudge. A common mistake is to start a few sticks burning and then cover them with grass. This will make only a spasmodic smudge which will soon go out. The best method is either to take hot coals from the stove or make a good fire of large chips. They will last an hour or more, and when covered with small quantities of damp grass, added a little at a time, will make an excellent smudge.

The best practical way I have found to get rid of mosquitoes in the house is with a good fly swatter. In the early morning they nearly always go to the windows, so if you watch the windows and screens at that time you can make a complete killing.

EW



Flies and mosquitoes haven't a chance to breed when the manure is hauled and spread on the fields, and the barnyard is well drained and free of trash

Cleaning Up the Farm

Where Paint and Repairs Add Dollars to Value of Acres

By CLYDE A. WAUGH

CLEANING up the farm has been commercialized—put on a dollar-and-cents basis. In Northern Indiana there is a firm of real-estate dealers that buys up run-down farms, puts a force of men on them to paint the buildings, whitewash the stables, repair the fences, and generally renovate the old places until they are ready for new buyers. These buyers are usually brought in from a distance, and in many instances pay an advance of from ten to as high as forty dollars to the acre.

In Kankakee County, Illinois, is a farmer real-estate man who makes a handsome profit in putting a clean face on farms. His methods are more thorough and his results more lasting than those of the real-estate firm mentioned above. He does not stop with the buildings, however, but goes much deeper in his cleaning operations. He takes the farms purchased under his own personal supervision, uses lime if necessary, drains the farms thoroughly, starts a three-year rotation of corn, wheat, and clover, applying commercial fertilizer in liberal amounts on both corn and wheat, and, in short, puts the farms on a paying basis. Each year he makes a profit sufficient more than to pay the interest on his investment as well as an excellent profit whenever he makes a sale. All of which goes to show that if one plans to sell a farm it pays handsomely to clean up before bringing a prospective buyer on the premises.

In our own experience we have found that it pays well to clean up the farm when it is not for sale. Some five years ago we purchased a northern Ohio farm at \$100 an acre. We planned to keep it so each improvement made would be a permanent one, though we planned only to make improvements that would pay for themselves. We were living on a neighboring farm, so our first concern was not for the house, barn, orchard, or similar improvements, but for the more basic ones.

In that section of Ohio we are sticklers for farm drainage—we have to be. Hence our first task was to clean out the open ditches and to follow that up by cleaning out the openings of all the tile drains. The farm was in a rotation, but instead of growing red clover for hay the first year, we raised 40 acres of alsike clover for seed, returning all the clover haulm to the land. All the crops, even to the oats, were fed up on the land, the manure carefully conserved and put back on the soil. Some fertilizers were used then, but with our later experience we see where a great deal more purchased plant food could have been utilized to advantage. Anyway, we started right, seeing to it that the essential fertility was returned to the soil so that it in turn would return us the funds for later improvements. It takes a fertile soil to make a thorough clean-up on any farm.

With the proceeds of the first year we put a new roof on the cattle shed, a new foundation under the barn; repaired the corner; replastered and repapered the tenant house; raised the kitchen, and made it level with the rest of the house; put a new wall underneath the house, and repaired the water-supply system. Several rods of old rail fence were torn down, the better rails stored away and the old ones saved for firewood. Several hundred pounds of old iron were found about the place and sold for junk. Several new gates were made, and some old ones repaired.

Increases Value \$50 an Acre

THE second year saw another line of cleaning-up begun. Forty acres of the farm had never been cleared, but by building many fires and the use of many pounds of dynamite, 20 acres were made ready for the plow. We ditched that "twenty," which grew an 80-bushel corn crop the first year, and at the same time we ran tile drains through other wet spots on the farm. The cleaning-up continued as long as we had the farm. Much remained to be finished last fall when a purchaser offered us an advance of nearly \$50 an acre.

During the entire four years the farm paid us a greater rate of interest than the law will allow you to charge in any State. So far we have considered cleaning up the farm only from the standpoint of actual returns in dollars and cents, giving little or no attention to the indirect returns. In many cases these amount to as much or more in the long run than returns which can be shown in actual figures on the balance sheet at the end of the year. The farmer and his wife become more efficient when the farm is cleaned up. It creates a new atmosphere about the fields, helps to keep the boys and girls on the farm, and makes farming a pleasure instead of a drudgery.

Principles are often bet-

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ter proved by actual examples than by mere statements of the points involved, so we detail another case in northern Ohio. Some seven or eight years ago a family moved to town because the farmer's wife and the children were becoming dissatisfied with the country. Each day the men-folks drove back and forth—a long hour before and after a ten-hour day in the fields.

Two years was enough time to convince them of their mistake. They are now back on the farm, comfortable, satisfied, and with the boys in the agricultural college. But it was a case of cleaning up. They took most of the good of the small town back to the country, and left the rest.

Before moving back, the old farmhouse was remodeled. Electric lights, a bathroom, a furnace, a water system with a pressure tank, and closets with a septic tank were installed. A wide porch was built. At the rear of the house a screened porch was built, connecting with the kitchen so that muddy rubber boots, overshoes, and the like would not track up the house. The basement was built to take care of the butchering, the washing, and other similar tasks. Altogether, it made a complete clean-up as far as the house was concerned, reduced the house work fully one third, made a hired girl unnecessary, while the superior sanitation and ventilation of the remodeled house has perhaps meant an even greater saving in doctor's bills and in the increased efficiency of everyone about that farm.

The clean-up fever is infectious. In that case it did not stop with the house—no, not at all. One of the boys noted the old orchard needed cleaning up, so he began pruning. After the first day he decided that he knew but little about it, so some old unused experiment station bulletins were consulted, and as a result the old orchard was sprayed as well as pruned. That year it returned a total of nearly \$500 against \$150 a year when it was in its prime.

The lawn was leveled. An old picket fence connecting the lawn and orchard was torn down and fed into the furnace. A neat woven-wire fence was substituted, and grapevines planted along the fence row. Until the grapevines reach the top of the fence a hedge of golden-

glow hides the orchard, woodpile, and chicken yard. Several flower beds were placed at points where they would not interfere with the clear stretch of level lawn. Within five feet of the kitchen door is the vegetable garden. With the pressure tank already installed, 100 feet of garden hose was found enough to take care of watering the garden and a full 200 feet of lawn.

In remodeling the house, a low lean-to was moved aside. For a year it had been an eyesore, and then the automobile came to the farm. An investment of not more than \$35 in lumber for doors, cement, sand, and prepared paint converted the lean-to into a most satisfactory garage. Here the pressure tank again comes in handy in washing the machine.

Next the barns came in for their share of attention. The old board floors were torn out of the stables and new concrete floors substituted. Old granary partitions were torn out and the grain storage made rat-

proof. The wheat and corn saved from the rats will pay for the improvement. The hog house was sided and floors put in. After that improvement a greater percentage of the pig crop was saved than at any time during the farm's history.

The fields were cleaned up, fence rows cleaned out, and new fences built. Thistles were not allowed to go to seed, dock and mustard were pulled out by the roots. One 30-acre field went in oats that were fertilized heavily and were followed by alsike clover grown for seed. This was followed by a crop of corn manured at the rate of 15 spreader loads an acre. No weeds went to seed in that cornfield. It was followed by wheat fertilized at the rate of 200 pounds an acre, which yielded at the rate of 50 bushels an acre. Five years

ago that same field grew but 35 bushels of corn to the acre. Now it has been cleaned up and has come back. That entire farm is making more money than ever in its history, and it is all the result of a thorough clean-up.

Saves Labor; Makes Profit

ANOTHER example of the advantage of cleaning up is shown on Deer Creek Stock Farm at Camden, Indiana. Here it is put to commercial advantage in that each change is made to save labor and so make a profit. For instance, an old evaporator had stood on a ridge. When the old building was replaced it was located in a ravine so that gravity carried the fresh sap from the trees through all the evaporating pans. On this same farm cement was used extensively in cleaning up, a concrete feeding floor going in the barnyard and concrete watering troughs taking the place of the old wooden ones.

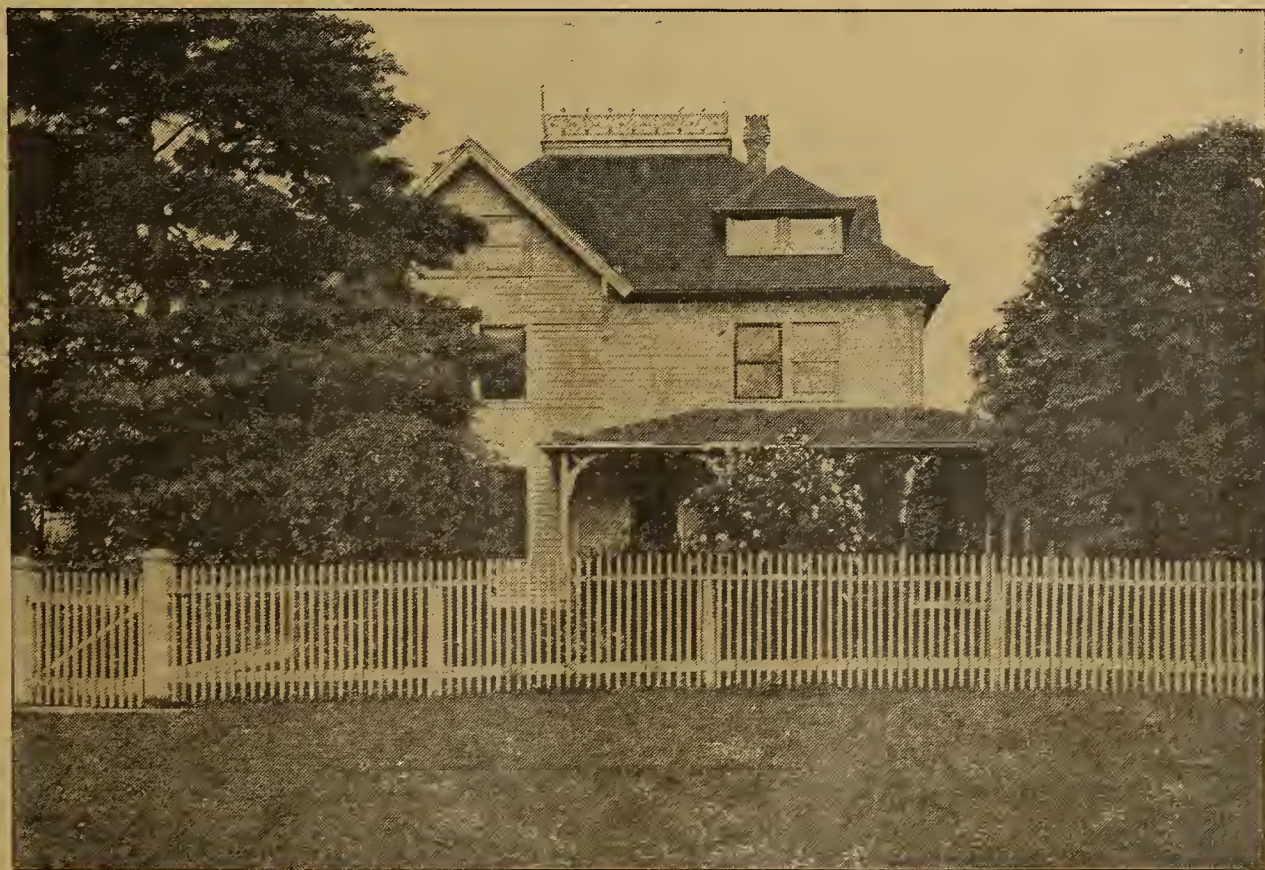
On most farms another type of cleaning may be done. Fence rows, lanes, orchards, and the patches about most farm buildings furnish a large amount of waste pasture which a flock of sheep will clean up to advantage. One summer we kept an entire flock of 15 ewes and their lambs on the waste pasture along the roads. It means mutton for nothing and cleaner highways.

In passing many pasture fields I have wondered at the amount of land occupied by brush and shrubs. Once I talked with a neighbor who had cleaned up his entire pasture. He said that he found that he had been wasting one half of the land in that particular field. It surely paid him to clean up when he was able to double returns from an acre.

There is still another cleaning job which should not be neglected this spring, and that is the cleaning of the seed. Light and broken seed should be fanned out. The hours spent on seed selection pay as well as any you can spend. Cleaning up the farms pays in dollars and cents. It increases farm efficiency and makes happier farm homes.



An Illinois farmer puts clean faces on farms and sells them at an advance of from \$10 to \$40 an acre



Cleaning up the fields, repairing and repainting the house and barns, creates a new atmosphere about the place that increases the pleasure of farming



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The Editor's Letter

A Woman's Plea for a Free Mind and a Broader Outlook on Life

HOW prone all of us are to look at a picture from one angle only and then to conclude that we have seen all it represents! And isn't this particularly true of the view we men take of the needs of modern women? As we observe the activities of American women to-day, haven't some of us rather hastily concluded that she has stepped out of her proper sphere, and have we as complete sympathy and understanding of her problems as we should really have? The place American women are making for themselves in our modern civilization is quite as important as man's place, although her duties will, I believe, continue to be radically different.

But just to show more plainly what I mean, here is a letter I received in this morning's mail from Miss Jennie Beech of central Indiana. (of course Jennie Beech is not the writer's real name, which for obvious reasons, when you have finished reading this letter, you will see I am not at liberty to use).

"I have read the discussions in FARM AND FIRESIDE Editor's Letters for a number of years, and have come to expect new light on any subject that may be up for consideration in this forum. But I do want to put in a mild protest against men's and boys' problems monopolizing so much of the space given to these letters. I believe as many women as men read FARM AND FIRESIDE Editor's Letters.

"This brings me to the point where I can say I have troubles of my own which may be helped by having an airing in an Editor's Letter. My difficulty is more in the nature of making a wise choice, or otherwise. I have arrived at the place where I am no longer an inexperienced girl nor an experienced woman—twenty-six years old, just entering the borderland of spinsterhood. I am quite agreeably situated in a fairly satisfactory farm home as far as comfortable conveniences are concerned. Our neighborhood comprises a lot of nice but rather prosaic people whose principal lack, to my mind, is something to lift us out of the unending sameness which to me makes existence seem to lack some thrills that might come from delving into new lines of thought and activity. Our neighborhood church is not dead, but it considers its duty done when Sunday school and preaching for the week are decorously concluded. The Ladies' Aid Society meets, sews, and collects its dues mechanically each month, and our rural school of about a dozen pupils annually drags through its textbook exercises for its allotted term.

The Stretch of Years Ahead

"I have been giving a lot of thought to the best disposition to make of the stretch of years ahead of me. Shall I quietly continue to do my farm-home round of duties, monotonous but not unpleasant, from day to day; go to Sunday school, church, and Ladies' Aid, with occasional invasions of our little city for lectures, concerts, etc.?

"When visiting friends in the city I have sometimes been a guest at women's clubs where programs dealing with current literature and little excursions were made into art, music, and science topics. These occasional meetings generally lift me out of my prosaic existence for a time, and incline me toward the belief that such city opportunities more than make up for the undoubted privileges of country life that the resident of the city must forego. It is true that the pleasures and benefits to be derived from women's clubs are largely for those who have homes where there is some chance for afternoon leisure. The shop and office workers are less fortunate.

"Did this matter concern myself alone I should hardly have written this letter. Everyone who knows life as it is in many country neighborhoods understands there are plenty of girls, or women if you please, of my age and up to fifty or sixty who lack the stimulus of uplift (a term I dislike) which I have tried to make evident in this letter."

After reading that letter, can you not see that prosperous community in which Miss Beech lives spread out before you?—fine, well-appointed farms and homes, a substantial country church, old-fashioned, well-built schoolhouse, with an air of respectability and conservativeness marking the entire scene. There is no question but what her community is a good one in which to live, but I think it needs what many rural communities still lack—a jolt that will develop a stimulus which will cause the people to be better "mixers."

Some sections of our broad country have partially worked out an answer to

the question Miss Beech has propounded. Mixing and mental stimulus are being brought about by means of organizations which include rural clubs and associations of various names. Most of these are based on the idea of blending business, sociability, and mental improvement. Where they really succeed, they of course must include men, women, and children in the membership. The organizations that are really proving successful for the purposes of sociability and mental development are not making much of a stir in a business way. Business and a generally good, interesting meeting do not mix well. There are times when business should take second place.

Several years ago I visited a number of organizations of the character mentioned soon after they got started to work. I wish it were possible that a few thousand readers of this page could have been with me at the earlier visit and again when I recently enjoyed a round of visits to the same organizations. Many of those taking part in the programs with papers, systematically prepared discussions, extemporaneous remarks, entertainment numbers, and music could not realize what three or four years of organized effort, which offered stimulus and pleasure at the same time, had done for them. It was a fresh revelation to me what such community team work can accomplish not only in mental development but in the ease and dignity of demeanor while taking part in the various features making up the programs and social activities.

Woman's Club Would Help Much

This plan of divorcing important business from the general activities of rural social organizations suggests two plans which may help to work out the improvement in which Miss Beech is interested. One is to undertake to form an auxiliary club to become a separate part of the farmers' business organization now in operation in her community.

Another solution may fit even better the condition Miss Beech describes. This is to organize a rural woman's club having a young folks' auxiliary, the former to be conducted somewhat similarly to those giving satisfaction in cities and towns, and the club for the young folks with the same general end in view but with the necessary modifications. Should either suggestion be adopted, the men of the community need not suffer social eclipse. It is easy to arrange a number of guest nights or guest meetings each year when the men of the community can gather as guests of the woman's club, to be entertained with a special program, sociability, and refreshments.

In turn, the men can become hosts and have the woman's club as guests, and demonstrate up-to-the-minute business and political methods by means of programs or otherwise, and of course conclude with a supper.

In the same way the young people can add to the enjoyment and enthusiasm of all concerned by their contribution to the community spirit of improvement.

These suggestions of mine are not based on mere theory. I have found their embodiment in different parts of the country. It is this evidence that persuades me to make these recommendations to Miss Beech. Her letter which we have read shows that she would make a valuable addition to a woman's club in her near-by city. By the same token it shows she would make an even better member of a rural woman's club because she so well comprehends the particular needs of her own community. Furthermore, her letter carries with it a conviction to the reader that she possesses the qualities of initiative, discernment, and tactfulness which qualify for leadership.

I therefore now rise to ask Miss Beech what better field of opportunity can a young woman of her type of preparedness ask for than her own community field, waiting and ripe for her energetic powers that are yearning for action and development?

The awakening of any community to a desire for the growth that comes with organized effort for the best things in social, recreational, mental, and moral activity is a God-given work. I can't help but believe that the waiting job for betterment of her own community and the evident qualifications of Miss Beech for that job are something more than a coincidence. Whatever her future decision about matrimonial alliances may be, I feel sure her energy will soon be working improvement in her own community.

The Editor



GOATS take the prize when it comes to cleaning up a brush-covered pasture. First they eat the leaves of the brush, then the sprouts, and last a part of the bark. Goats not only clean up the brush, but they turn this waste product into meat and mohair. The goats won't do all these profitable things if they can get alfalfa hay and ground corn and oats.



THIS well-constructed, reinforced concrete bridge replaced a wooden structure that had done service for many years. The difference in repairs and the permanence of the concrete bridge were the factors in its favor. The earth road in the foreground has been graded and crowned. The next step will be to roll it with a steam roller or a large horse-drawn roller.

What Makes the Farm Attractive

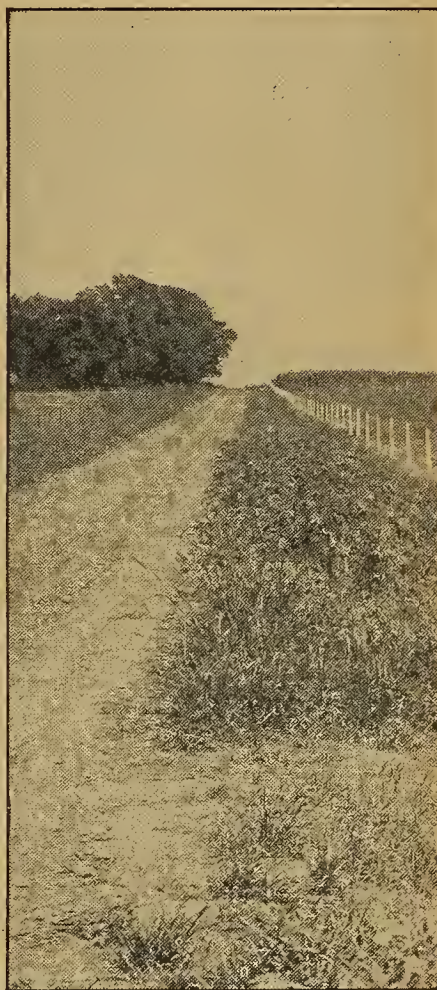


MANY cords of wood can be cut from the dead trees and broken limbs in the average woodlot. In addition to the fuel, the woodlot is improved in appearance, and the grass is given a chance to grow because of the extra sunlight. This Ohio lot will furnish a great deal of pasturage for the milch cows this season.



SHEEP will help a great deal toward keeping a pasture free of weeds. They are one of the best clean-up agencies of the farm. You've noticed how clean and good-looking the sheep keep the lane or the road leading from the barns to the pasture. Mutton and wool is what the sheep made from weeds and grass. Then there is the lamb crop.

THE crops along the fences have more moisture and plant food to use if the weeds and trash are cleaned out. True, you need a turn row, but not as much as a lot of weeds will take if given the opportunity. The cement fence-post row is clean and attractive; the fence row on the left of the road isn't.



PHOTOGRAPH BY HOLT FEATURE FILM COMPANY



AT a cost of less than \$10 an acre the owner of this 320-acre Iowa farm cleaned up the fields and pastures, put in concrete fence posts and a four-wire fence, and repaired and repainted the house and barns, built new corn-cribs and grain bins, and drained two of the fields. Two years later he was offered \$50 more an acre than he had paid for the farm. He didn't sell it.

WHO are these ladies with white bands on their arms and black leather cases in their hands? They are public-health nurses. Sickness has been decreased very materially since these two public-health nurses began to visit the schools and homes of a Kansas community. Public-health nurses are paid by the county or by subscriptions and donations.



FARM and FIRESIDE

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April 8, 1916

Tractors and the Climate

IN THE Mazatlan district of Mexico farm labor can be hired for from 15 to 30 cents a day, and the men board themselves. Two of the large farms down there, according to United States Vice-Consul A. Gordon Brown, use American tractors to advantage.

This seems to show two things: First, a tractor can be used profitably even where labor is cheap; and, second, it makes the best of inefficient labor. Put a tractor in the hands of a languid Mexican, and as long as he keeps going he will do as much work as the most ardent advocate of the strenuous life. Power machinery thus offsets the climatic lassitude affecting men and animals, and gives opportunity for tillage nearly twelve months in the year.

How Heavy is an Ear?

"**W**HETHER we are willing to admit the fact or not, the breeders of high-grade seed corn are striving for the larger ear. They are paying little attention to the ability of the ear to mature under the conditions for which it is sold."

These words, in substance, are those of a leading seed-corn man of the country.

Perhaps he is right. There is reason for trying to secure the ear that will weigh well, for it is weight that will result in yield, other things being equal. But the experience of the corn farmers of the past year ought to call a halt on the demand for a big ear. Iowa and Illinois are now suffering the penalty of immature corn—seed corn of the right sort will be scarce.

And for the past year much corn going to the market has been moldy and soggy.

Isn't it possible to get a medium-sized ear that will yield well? Isn't it possible to lay emphasis on the breeding of corn that will produce a greater number of ears and have them mature when frost comes? What should be the average size of the ear of dent corn as we find it growing in Iowa, Illinois, Indiana, Missouri, and other corn-belt States?

Horse and Hand Gardens

DID you ever keep tab on the different kinds of farm gardens to be seen in a summer day's drive? The automobile is too rapid for garden-gazing. But even in an automobile you won't pass so many really good gardens as to make your drive monotonous.

Gardens fall naturally into two classes—thumb-nail size and horse-hoed plots. The first, hard by the kitchen door, utilizing some protected area between buildings or a "sun-kist" corner, can be made to turn out an unbelievable quantity of tempting garden "sass."

The ideal horse-size garden generally comprises not less than a half acre. Dimensions of 20x4 rods will furnish over 6,000 linear feet of inscious eating when rowed three feet apart. With this type of garden the horse can be made largely the producer and the family the consumer.

When the last word is said, the farm table is a big factor in producing farm

efficiency, and a good garden has no competitors in holding the good will of a crew of hustling farm workers.

Reasonable Request

AT ITS nineteenth annual convention held last January in El Paso the American National Live Stock Association passed this resolution:

WHEREAS, At the present time a large volume of pure-bred live stock is being distributed over the United States, which will result in an increase of many millions of dollars in the value of the live-stock industry, and in which the railroads will share; and

WHEREAS, The rate at the present time upon breeding animals, particularly shipments of single animals, is so high as to be practically prohibitive; therefore be it

Resolved, That our secretary be directed to endeavor to secure from the railroads of the United States a special breeding rate for pure-bred animals.

This request is reasonable and logical. It is strictly in line with the customary practice of granting reduced rates to homeseekers and otherwise encouraging agricultural production which will result in greater railroad tonnage.

Two Schools



ONE of these Riley County, Kansas, schools provides better, more convenient, and more healthful living conditions for the children who attend it and the teachers who teach it than the other one. When these schools were scored in 1915 on the condition of the school house, the water supply, the toilets, and the playgrounds, one scored 98, the other 46. The low-scoring school needs a building with more windows, a playground drained and free of weeds and trash, two fly-proof toilets, and a good well.



To Get High Prices

IF SOMEONE came along and said that he was getting a better price for his products, that buyers visited his farm and bought all of his production, that he couldn't supply the demand, and that he was making more money than he had ever made in his life, you would think he was either a smart farmer or a man of unsound mind.

But farmers are actually doing all of these things in all parts of the United States every day. Nearly every community has its people that are especially good at doing some one thing—raising corn, fattening cattle, producing milk and butter, raising alfalfa, growing garden truck, or taking care of chickens.

I can well remember when I was a boy in the Fairview neighborhood we always bought our buckwheat from Bill Smith down on Bow Creek. Why? Because Bill Smith knew how to raise buckwheat. He was the best buckwheat grower in the county. His product never varied.

The Andersons always received five cents more a pound for their butter than anyone at Fairview. The butter had the quality, and it was standard—it never varied. Mrs. Anderson had a waiting list of butter customers in town. The Robinsons were the potato kings of the county. Town customers bought all the potatoes the Robinsons grew, at several cents more than the market price. We studied and worked with hogs and alfalfa until we became very skilled in

their production. We nearly always received the top price. The buyers knew what our hogs and alfalfa were.

Other farmers in that county had reputations for wheat, and corn, and oats, and rye, and eggs, and poultry, and grapes, and peaches, and apples, and tomatoes. One orchardist couldn't supply the demand for crab apples. The Lammer boys received fancy prices for all of the watermelons they could grow. But they would lose sales rather than turn out melons that weren't up to their standard of quality.

These farmer neighbors knew how to sell their products as well as to grow them. They never worried a great deal about the market price because the things they had to sell were better. I remember the Waltons sold oats for seed at \$1 a bushel nearly every year, when at that time the price of oats was varying from 25 to 35 cents a bushel.

This all goes to show that standardization of farm products, which is another word for raising something that is good and of even quality, simplifies farm practices, increases production and profits.

Our Letter Box

College Didn't Spoil Her

DEAR EDITOR: When I read the request that some of the girl readers should express their views on a young man's attitude toward his hardships for the not impossible "she," I felt that I must make a reply.

I cannot see any hardships to be borne except those which are of a nature that would furnish much joy to the young woman who is truly worthy of such an earnest young man as you mention. It is a very noble aspiration for the young man to wish to spare a woman from unnecessary burdens, but if his helpmate-to-be could have the privilege of sharing this young man's present burdens by preparing whatever food he has, in a wholesome and attractive manner, and by keeping his house neat, even though there may be but little furniture, and by assisting him in whatever way would be acceptable to him with the light outdoor work, and, above all, by helping him create and maintain that happy home environment which only a true, sympathetic, loving and loved wife knows how to do, she would more fully enjoy the happy, comfortable, well-furnished home which he hopes some day to provide.

I will give you a very brief account of my experience, so that you may see that I know something of the so-called hardships to be met with in farm life.

My first four years of school life were spent in a rural district school. I walked nearly two miles to the village to school, until after I had completed my first year of college. During the last three years of my college course I had rooms in

town, where I stayed in bad weather.

In order to meet a part of my expenses I helped raise garden vegetables, and sold them in the village.

I finally graduated from college in 1913 with the A. B. degree. I have taught in high school some since then, but I have decided that I am better adapted for rural work. Since last April I have been helping in the home of my father's eldest brother, also a college graduate. I do nearly all of the housework, milk three cows night and morning, have helped with the vegetable and flower garden, and have done some other light work about the farm.

I heartily second the advice you gave to the young man in regard to obtaining an education and fitting himself for a rural teacher. But let me say in closing that if he becomes acquainted with a young woman whom he loves and who truly loves him, I sincerely hope that he will not even wait until his education is completed before he grants her the privilege of helping to lighten his burdens.

Miss E. R., New York.

Interested in Sudan Grass

EDITOR FARM AND FIRESIDE: I see in FARM AND FIRESIDE of January 1st where George W. Dewers of Kansas and Roland H. Galliher of Ohio have given their experience with Sudan grass. I will give mine here in southern Ohio.

I purchased a collection of seeds last spring from a seed house in Indiana and among the collection there was a package of Sudan seed. About the first of May I drilled the seed in rows 16 inches apart. In four or five days it was up. I cultivated it with my hand garden plow until it was up above the weeds, and by August it was out in head. I did not cut it for feed, but let it fully mature. I cut it for seed before frost.

The heavy rains and wind mashed it down several times, but as soon as dried off it raised up all right. It was about eight feet high. I topped it, tied in bundles, or sheaves, and let dry till January. I threshed eight pounds of seed which I expect to plant this spring. Sudan is in its infancy in this part of the country, and it was quite a curiosity to people that saw it growing last year. I consider it a good feed. I also consider sweet clover an excellent feed.

One question I wish to ask in regard to Sudan grass: Can it not be cut when about four or five feet high before heading and make good feed? Also, can it be cut for second crop after heading out?

A. L. EWING, Ohio.

Wants Poultry Information

DEAR EDITOR: We enjoy your paper and cannot farm or keep house without it. Just keep on putting in good stuff about poultry—that is the paying crop on the farm. Yours for success is our earnest wish for 1916. H. W. C., Ohio.

Saves \$3,200 in Three Years

FARM AND FIRESIDE: I notice one of your readers asks whether homesteading is profitable? He also asks about the Dakotas. While I believe, as the editor says, that most of the homestead land in the Dakotas has been taken up, there is still good land open in Montana. We have no hot winds here, no cyclones, and our season is long enough to mature Minnesota Thirteen and Wisconsin Eighteen corn.

I have a homestead of 320 acres that cost me about \$100. I have not experienced any great difficulty in making a living on it, and in two years more (when I have it patented) I can realize at least \$10 per acre. This means \$3,200 saved in three years. I don't know of anything I could do to save that amount of money in the same length of time with so small an investment. F. C. Boyce.

Hopes to Subscribe Twice

DEAR EDITOR: I was just thinking I would have to write and tell you to stop my paper, as my pennies are scarce, but when your last offer came the goodman gave me a quarter, saying we could do without something else better than we could without FARM AND FIRESIDE, so here I am for another year. I hope by next March I will be able to send you \$1 for two subscriptions—one for my son. We certainly like the paper.

L. D., Oklahoma.

Isolated and Contented

DEAR EDITOR FARM AND FIRESIDE: Why is there so much said about the isolation of farm women? I am a farmer's wife living two miles from the nearest church, and with no close neighbors. But we are not lonesome. There is my husband, our baby, and myself. Baby is a year and seven months old, can walk, and tries to talk. We have chickens, pigs, turkeys, and guineas. In the spring and summer we milk one or two cows, and are so interested in our work and each other that we are happy. 'Tis true that we

haven't much more than the necessities of life, but we have each other and fairly good health.

Sometimes we drive twelve to fourteen miles to a picture show, and enjoy it. We don't have electric lights or running water or gas, but we have plenty of God's sunshine and pure air and good wood to burn, which is just condensed sunshine that we gather in the summer for use on the bleak winter days while we read or play games or just visit with each other.

As long as people keep busy and interested there will be no complaint about loneliness. When you feel a blue feeling coming on, get interested in someone or something. The loneliest I ever feel is when I make a trip to the city where I see hundreds of people each minute, yet never see a face I know or that seems to want to know me. The shops, the shows, the music, and everything give pleasure, but I am always glad to get back to the farm to find peace and such natural comforts as we have here in Oklahoma.

MRS. J. C. E., Oklahoma.

Please Don't Miss, Then

DEAR EDITOR: It is like one of the family is away from home when FARM AND FIRESIDE is missing.

H. M. T., Pennsylvania.

Bits of Good Humor

We Are All Alike

"Do you suffer from the climate?"

"Yes. I know a man from California who refuses to talk about anything else."

One or the Other

TOMMY—Mama, have gooseberries got legs?

MOM—Of course not, Tommy.

TOMMY—Then I've swallowed a caterpillar.

Just Right

BARBER—I want a motto from Shakespeare's works to hang up in my shop. Can you suggest one?

CUSTOMER—Of course. How will this do? "Then saw you not his face."

Old Story Retold

"How is your boy Josh getting along with his books?"

"First rate," replied Farmer Corntosel. "He's learned a whole lot."

"Knows more than you do, I bet."

"I won't say that. But he kin tell me a lot of the things I already know, in language I can't understand."

Essay on the Cat

The cat is a fuzzy-faced invalid who gets a job on the farm on the pretext of catching the rat that ate the malt that lay in the shed the hired man built, but she is ill so much that she has very little time to devote to regular business and, besides, unsophisticated young chickens are easier to catch than world-wise old rats, and the cat likes the taste of them better.

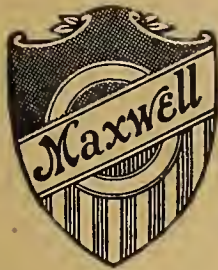
During the daytime the cat feels as well and chipper as anybody else, but she cannot do any real work, as all this time is taken up by sleep. Then, as the sun sinks slowly in the hazy west the cat gets up, stretches, yawns, rubs her eyes, knocks over a couple cans of milk, and saunters forth to see what she can see. The cat has the best of intentions at this



time, and if a rat came up and kicked her in the face and called her a liar the cat would fly into a rage, swell her tail up like a balloon, spit on her hands, and slap the rat in the eye; but this seldom occurs, and as darkness comes on, the cat begins to feel poorly and goes away to wrestle with her surging emotions, and mounts the garden fence and pours forth melodious passages from long-forgotten grand opera.

This makes the cat feel some better, but helps no one else.

EW



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Maxwell Motor Cars offer no fads, no innovations, no eye-catching frills, no experimental features.

We could build cars of two or three different sizes. We could make any and every kind of an engine that has ever been tried out on a patient and unsuspecting public.

We could constantly make changes, bring out new, revolutionary and untried models to stimulate interest for the passing moment.

But we do not do these things and we will not. Because we don't have to. Because our car is sought solely on its solid, substantial and demonstrated merits.

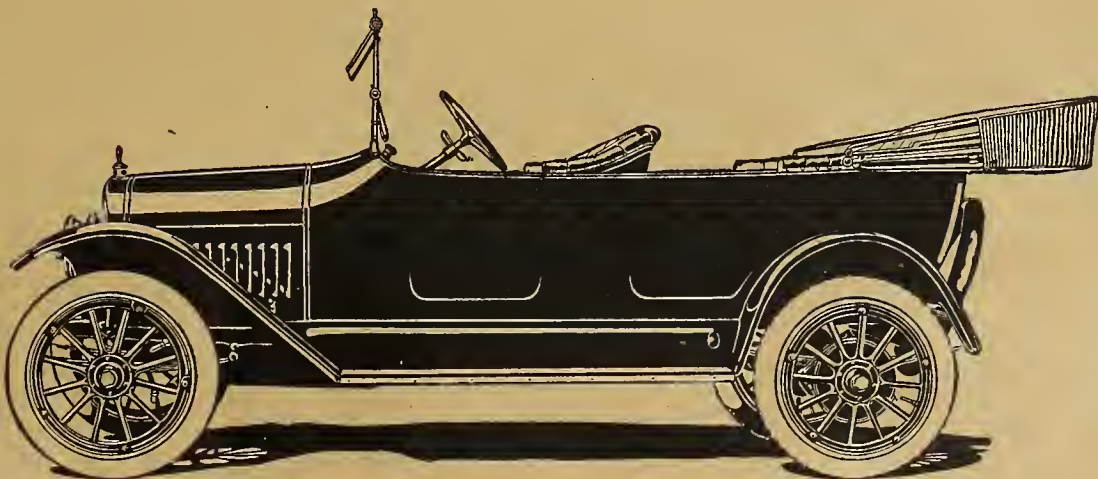
Maxwell Motor Cars are standardized products. They represent a definite and known quantity. They are as nearly a staple commodity as any automobile can be.

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Of course, we are continually experimenting, testing and taking advantage of the progress made in the engineering and metallurgical sciences. But we know and Maxwell owners know that our car, in its class, is the finished and recognized standard of value.

The Maxwell policy of concentrating on **one and only one** car, of devoting every energy and resource to such minor improvements as time may develop, assures you of two things—that you will never suffer any abnormal loss by the introduction of a cheap car, made only to sell rather than to serve, and that when buying a Maxwell you will always be able to get the greatest possible established motor car value per dollar of your investment.

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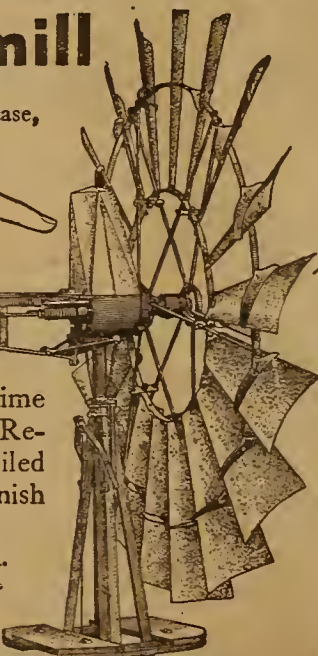
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Binder-Twine Prices

Senate Investigates Alleged Sisal Monopoly

By JUDSON C. WELLIVER

WASHINGTON, D. C., March 20, 1916. THE price of binder twine this season will be 9½ cents as against 6¾ cents last year. This

is the Kansas price as set by the state penitentiary plant. This advance will take from the pockets of Kansas farmers a half-million dollars. The penitentiary authorities cannot help this condition of affairs; they must get enough out of the work they do in making sisal into binder twine to break even. The price of sisal has gone up. And there seems to be little outlook for relief. The reason for the advance in price is what is being asked. The Senate committee has been investigating the situation—the sisal monopoly that keeps prices high. Recent testimony has taken a very sensational turn.

The sisal, which is the chief raw material for binder-twine manufacture, all comes from Yucatan Province, Mexico. The Government of Yucatan and the Carranza Government of Mexico, it is charged, have entered into a combination with a group of American bankers to perfect an absolute monopoly. The hanking combination, called the Pan-American Commission Corporation, was founded by two New Orleans bankers, Sol Wexler and Lynn H. Dinkins. They told the Senate committee about the organization, and described the methods; but declined to present a list of their stockholders except for the confidential information of the committee and not to be published.

The hanking combination has a capital of \$1,000,000, on which its commissions alone, for handling the entire sisal products in this country, are calculated at \$450,000 a year. The price has been hoisted so much that it is now estimated the American farmer will pay from \$3,000,000 to \$5,000,000 more for his twine. The bankers pledge themselves to loan up to \$10,000,000, at any one time, to finance the Yucatan planters. For these loans the sisal crop, warehoused in this country, is pledged as security at not over 60 per cent of its value. People familiar with the sisal industry insist that there is no need for such huge capital advances, and that the \$10,000,000 loan will never be required, the promise of it merely serving as a pretext for holding together the air-tight combination that makes possible the real object—namely, the hoisting of prices.

The sisal monopoly has tried to make it appear that it is really being fought by the International Harvester Company, which is held up as a wicked monopoly, deserving to be mulcted. But the charge has not made much impression in view of the fact that while the Harvester Company is a binder-twine maker it has at least seventeen competitors in the country, eight of them being big plants in state penitentiaries. These competitors are standing firmly with the Harvester Company in the fight against the combination. One of the managers of a big penitentiary plant assured me that there had never been any evidence that the International tried to impose unfair competitive methods on its rivals, either in buying supplies or in price-cutting and like devices. It is obvious, anyhow, that if the combination hoists the sisal price the ultimate loser will be the farmer, who must have twine. In a few months the combination has raised the price of raw sisal from 5½ to 7¾ cents. New York prices, and it is reported that by July the price will be 9 cents, while 10 cents may be reached later.

Farm Appropriations Reduced

The Congressional way of dealing with appropriations was effectively illustrated the other day when the House of Representatives passed the agricultural appropriation bill.

For a long time the Department had been investigating the question of farm management. It is a very big field in possibilities, but one in which public leadership and direction have not very fully adjusted themselves to the problem of getting good ideas across to the farmer, and getting the farmer to pay attention to them.

After a great deal of study the department authorities agreed that they could begin the reorganization of their farm management work in the right way, and start it toward big results, if Congress would give them \$24,000 per annum for this division. The most careful pruning was done by the people in charge of this scheme; they knew exactly what they wanted to do with every dollar.

When this modest request for \$24,000 got to the House Committee on Agriculture, it was considered exactly as any other demand for an increased appropriation is. If the Department asked a dollar to do a certain amount of work

it could, of course, do half as much work with half a dollar!

So the committees of Congress, many years ago, learned that it was commonly possible to prune down the estimates of the departments.

Then the departments learned the corresponding lesson from the other side; if Congress was going to prune their estimates one half, the caper was merely to double the estimates; ask twice as much as was really needed or expected, let Congress have the satisfaction of feeling virtuous about cutting the total.

This scheme worked pretty well for a while. Then Congress "wised up" to the fact that it was being hummed in return for its rather stupid way of dealing with appropriations on the figures rather than the merits. It began putting the screws on people who made estimates, prying in to learn what were the real merits, and trying to get down to real business.

This development, if it could have been carried far enough, would have done much to place government business on a real business basis. The difficulty was that some committees of Congress would deal intelligently and understandingly with matters before them; some others would not. Likewise, some people in the Government would be honest in making their estimates, and ask just what they really needed; others would ask twice what they expected to get.

Chaos was a natural enough result. Now to get back to the Office of Farm Management. It asked Congress for \$24,000 additional allowance this year because it needed the money and had very specific plans for making good use of it. But the House committee looked over the rims of its spectacles, shook its head, and opined that this was one of the instances in which it was being flim-flammed. It carved the \$24,000 down to \$14,000, not for any rhyme or reason seemingly, but just because it felt under the necessity of showing the Department that it couldn't expect to have things too much its own way.

Big Men Needed for Big Jobs

Congressional dealings with the Department of Agriculture has frequently shown just such unwillingness to understand real needs. In another direction an almost equally obvious mistake is being perpetrated. Congress, after being urged a long time, has decided that marketing studies, development of better methods, encouragement of co-operation among producers, and the like, are of great importance to the country; which they are. So at last it is possible to get money for these purposes by hundreds of thousands of dollars.

But here comes in another form of economy, just as unintelligent as the casual trimming of that little \$24,000 item to \$14,000. While it is willing to provide plenty of cash for this task, Congress directs its expenditure under a system that seems certain to prove utterly inadequate to get the best results. To reorganize and properly develop truly efficient and economical marketing methods for this immense country is a task worthy of the best business talents in the world. It needs men capable of achieving, and with the record of having achieved, the highest kind of things in business.

I should say that men of the caliber and something like the experience of George W. Perkins and Charles M. Schwab would be of about the right size to deal with this marketing problem. But that sort of men are not to be had for civil-service salaries at a maximum of \$5,000 a year. Congress fixes limits on compensation that compels such a task as this to be turned over to mediocre men. It is not intended to reflect on those who are doing the work; they are all right and earning more than they are paid as a rule—almost any executive in the government service who is fit to be kept does that. But the gigantic marketing problem needs the attention of the highest men, of men who might be had at \$25,000 a year, perhaps, provided they were given also such authority and importance as would make their services command recognition and reflect credit on them.



Farm Notes

Auto Census in Brief

THE production of automobiles in the United States increased 350 per cent between 1909 and 1914, according to the U. S. Census Bureau.

More touring cars are manufactured than any other class.

There were 338 automobile factories in 1914, with an average production of about 1,700 cars.

Only two factories made steam-propelled automobiles.

For every electric automobile made there were 120 gasoline cars.

The use of automobiles for business purposes has increased enormously.

Automobile ambulances, hearses, patrol wagons, fire-fighting equipment, and omnibuses are now in general use.

Cisterns Save Soap

THE hardness of water is measured by degrees. When a gallon contains one grain of lime it is said to have one degree of hardness. When soap is used with hard water, about 2½ ounces of it per 100 gallons of water must be used for each degree of hardness, just to overcome hardness. It combines with the lime, forming a mineral product, and not until enough soap has been dissolved to overcome all the hardness does the soap do any good for cleansing purposes.

Some limestone waters contain as high as 20 degrees of hardness, and the cost of soap at six cents a pound amounts with an average family to \$12.60 a year. Washing soda at two cents a pound will soften the same water at an expense of \$1.50 a year. But a still better method is to have a cistern of soft water.

A Record of Business

FARM life to-day is calling for better methods of knowing how much money is invested and what the returns are from the investment in money and labor. To meet that call some system of book-keeping is needed. The U. S. Department of Agriculture is now in position to supply a set of books which are not complicated and yet are complete. This set of books is furnished free to those who mean business and who will use the books and then report to the Department the results secured and the satisfaction one way or the other they have felt.

Where County Agents Pay

ON SOME farms there are absolutely no returns for the labor of the owners of the farms. Such farms are said to have a minus labor income. Of course they are able to operate even on this basis because of the investment itself, which is paying its per cent.

In an Ohio county, where some facts were collected, it was found that of the 49 farms in the county having a minus labor income, only eight had made use of the county agent. Of the 25 farms having a labor income of over \$1,000 each year, 21 had used the county bureau and its agent.

Is it safe to say that county agents pay where they are used?

Bought Old Machinery

SOME years ago a well-dressed fellow drove up to my house with some farm machinery, and asked permission to store his machines in my barn. I gave permission, and after the machines were stored away he remarked, "They are the last of a large lot that I have been selling through the country, and I am anxious to close out the consignment."

He said if I would help him sell two or more of the machines while stored in the barn, I should have 50-per-cent commission on the sales. I accepted.

He then asked me to sign a paper specifying the terms on which the machines were stored on my premises. I signed a lengthy printed document which I read but did not understand. At the expiration of thirty days I was astonished to find myself called upon by another stranger to pay for the machines stored in my barn. When I objected I was shown my signature attached to an agreement, which agreement, the lawyer told me, was drawn in good legal form. I was a victim to the tune of about \$75, much more than the machines were worth.

A. C. W., Georgia.

Potatoes all over the ground



Bradley's Fertilizers

(THE WORLD'S BEST BY EVERY TEST)

This crop was grown on old pasture land by Edward H. Williams, Jr., on Bradley's Fertilizer alone, and yielded about 300 bushels per acre. Send for 1916 prices and terms.

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2 RECTOR STREET, N. Y.

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An Ideal Present

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Size 6 1/2 x 7 1/2; fully guaranteed. Postpaid to any address in U. S. or Canada on receipt of \$1

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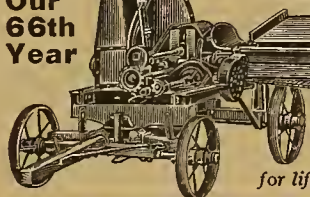
"Steels." Light, Springy, Comfortable, Economical, Waterproof, Warm in winter—Cool in summer—Adjustable Leather Taps, instantly renewed. FREE BOOK tells how you can try "Steels" 10 days FREE and save \$10 to \$20 shoe money.

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By special arrangement with several of the most prominent magazines in America, you can get any one of these periodicals for a year with Farm and Fireside as explained below.

Farm and Fireside, 1 year, regular price 50c } Both for 60c
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To-day's Magazine has been termed the one necessary woman's paper. This title seems quite appropriate because To-day's contains a valuable amount of important information which is both instructive and entertaining. The stories are wholesome and interesting. The fashions and hints on dress are up-to-date and sensible.

Farm and Fireside, one year, regular price 50c } Both for 50c
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The Woman's World is one of the best magazines printed for the money; in fact, is superior to many magazines selling for more than this. It is not only attractive in appearance, but its columns are full of the choicest literature that money can buy. It is a big value at a low price. Every farmer in the country should take this opportunity of obtaining the Woman's World without cost in connection with Farm and Fireside.

Farm and Fireside The Housewife For One Whole Year } Both for 60c

The Housewife is a bright, entertaining monthly magazine containing many wholesome serials and short stories and articles of unquestioned merit. It is a magazine that a woman looks forward to receiving each month. It is well illustrated with the work of the best-known artists. The Housewife is edited by Lillian Dynevor Rice.

ORDER TO-DAY
Farm and Fireside
Springfield, Ohio

Paint increased the value of this farm \$1200



In a recent issue of the Farmer's Guide of Huntington, Ind., Mr. George White tells an interesting story of how painting increased the value of an 80-acre farm in White County, Indiana, \$1,200. We agree with Mr. White when he calls it "an abiding witness to the efficacy of fresh paint as an enhancer of farm values."

But this is only a single example of the way in which an attractive, durable, weather-proof paint like SWP quickly increases the value of farm property. Painting with SWP is always a profitable investment, never an expense.

The ABC of Home Painting

A wonderful book—the only one of its kind which tells you in simple words just how to paint or varnish everything around the farm. Indexed and illustrated in color.

Send for a copy—it is free

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Go to your local dealer. See the "Z." Compare it on merit—by any standard—point by point. You'll sell yourself on this wonderful engine value.

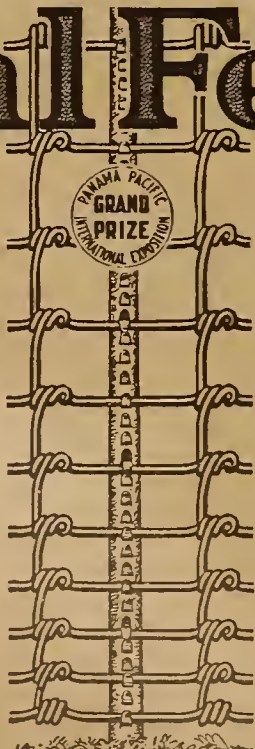
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All Fairbanks-Morse dealers sell "Z" engines on a zone carload low freight basis. If you don't know the local dealer write us.

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Sent Free

Write for booklet on how to set posts and erect fence. Every farm owner should have it.

Dealers Everywhere

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CHICAGO NEW YORK PITTSBURGH CLEVELAND DENVER

"My Best Investment"

Ventures Which Have Returned a Profit of More Than Six Per Cent

THE answers to the contest question, "What was your best investment?" were so numerous and excellent that nearly one hundred contestants have been awarded prizes.

The winning investments are considered commercially sound, and when good judgment is used other persons may profit by the experience. Some involve an outlay of merely a few cents, others on a larger scale, but all are good money-makers.

First prize of \$5 has been awarded to "Boy Bought Clover Seed," by E. T. Crist of Minnesota, and the second of \$3 to "Tiling Improved Crops," by S. R. Northiger of Oregon.

Boy Bought Clover Seed

By E. T. Crist

NINE years ago Mother and I were left alone on the farm with limited means. I was but a boy. When spring came on I thought I would like to try some clover seed, as I had read a good deal about clover as a feed and as a means of enriching the soil. As our farm was pretty badly run out, I realized that to make it pay we had to get into something besides wheat.

So I commenced talking clover seed to Mother, but as it was \$12 a bushel she thought that was pretty high, and said we had better wait until it got cheaper. But I persisted, and finally was told I could get it. I got the 60 pounds of seed from a neighbor who had threshed about six bushels the year before.

I will admit that when he weighed it out it looked pretty small to me for \$12, but I handed over the money and took my seed. I made arrangements with a neighbor to sow it for me, which he did after the ground was ready and sowed to grain. He sowed the clover broadcast on about ten acres. I harrowed it afterwards, and that covered it just right, for I got a good stand and it wintered fine.

The next June I cut 28 good big loads of hay for the first crop. The second I cut for seed, which I had hulled, and I sold \$160 worth of seed besides a bushel I kept for my own use.

So by figuring it up I had 28 tons of hay at \$5 a ton, which is \$140, and \$160 worth of seed, making \$300 all together, besides my own bushel of seed, the fertility brought to the soil, and the clover straw, which makes excellent bedding and manure. Clover is still one of my best crops, and the \$12 invested has continued to pay good returns.

Tiling Improved Crops

By S. R. Northiger

IN OCTOBER, 1914, we purchased a carload of tile, consisting of 3,000 four-inch and 1,000 five-inch, at \$23.50 and \$34.50 per 1,000 respectively. It had to be hauled over 18 miles of rough roads from depot to farm, which increased the cost of the tile to about \$150.

Most of the ditching was done during a cold snap, when the ground was frozen two or three inches. The greater part of the digging was in gravel, boulders, and sticky blue clay. We went three and one-half to five feet deep. A formation of quicksand in some places caused us great trouble with caving in, and we had to dig parts of the ditch four times before he could lay the tile.

To have this work done by hired help would have cost us at least \$250, making total cost of drainage about \$400. This work was nearly all done by my eldest son and myself. Results: Reclaimed three acres of land formerly too wet for any use. Now it is the richest land on the farm, producing far better crops than the other fields. This was like buying the land, worth \$100 per acre. Besides this, some eight or ten acres along this system of tile were improved enough to increase the crops from 50 to 75 per cent.

Traps \$5; Fur \$150

By Joseph Millard

MY FATHER lived on a large farm in a wild section of eastern Canada, where bears, foxes, mink, and muskrats were quite plentiful. Although Father was not interested in trapping, each month he received fur quotations from a New York fur merchant.

I always read them over and over, and each one seemed to give me more enthusiasm, until finally I persuaded my father to give me a few dollars to furnish myself with an outfit of traps, which I attended to each morning before school and evenings after school during that winter. I found in my first month's experience that mink and muskrat were easy prey

to my arrangements, but the fox proved a very cunning animal to get.

But by various schemes in setting traps near old windfalls across streams where the fox would likely jump when crossing from bank to bank, I succeeded after my first three months' effort in getting one silver-gray fox, which I sold handsomely, and eight red foxes, besides a score of mink and muskrats, netting me over \$150 profit on my investment of \$5.

Rifle Paid Tenfold

By Bryan Gamble

THREE years ago I bought a 22-caliber rifle for \$150. Last fall my brother saw a skunk near our barn. He got my rifle and shot it, and upon looking around found seven more in a tile that drains our barn lot.

The seven other skunks were shot also, and the next day we sold them all for \$15. The rifle paid for itself ten times in one day.

Put Steers in Woodlot

By D. A. McComb

SIX years ago I owned a half interest with my brother in a 134-acre farm. We had a fine woods-pasture field of 20 acres which, except for keeping four cows and a few sheep, was mostly going to waste. We figured for some time on what to do with the pasture—whether to rent it or get more sheep, or what?

I suggested that we buy some steers. Brother agreed, and as he knew where we could get them he went and picked out ten nice little fellows averaging about 700 pounds. They cost us \$220, of which I furnished \$110. This was in September. We put them in the woods pasture, where they had plenty of grass until snow covered the ground. Then we put them into the barn lot, and roughed them through the winter on fodder with the cows and sheep. They had good shelter, salt, fresh water, and plenty of cheap feed, but no grain to speak of.

They came through the winter looking about the same as in the fall, only they were bigger. When the woods pasture showed a tempting growth of tender grass, we gave them a short daily run on it, lengthening the time each day until they were tempered to the change. From that time on they were salted frequently and had plenty of fresh, clean water, but nothing else besides the grass.

We sold our ten steers in July, when, with their added weight and quite a little advance in the market price, they brought us \$450. For my \$110 investment ten months before I received \$225.

Fertilizer for Wheat

By Ernest Stehlik

I CONSIDER my best investment to be fertilizer. In 1914 I raised only 10 bushels of wheat per acre, and I decided to better my crops.

My first thought was to try some fertilizer, so I bought \$25 worth and put it on my wheat land. The young wheat did not show much improvement, and I began thinking I had thrown away \$25.

The wheat grew very well in spite of the fly, and when I cut it I noticed the bundles were heavier than usual. When I threshed, it went 25 bushels per acre of good wheat, or more than double my former crops.

Bought Percheron Mare

By Mrs. M. H. Himes

OUR best investment was made when my husband bought a pure-bred Percheron mare. We sold three colts for \$360, and have two colts on the farm, valued at \$450.

The mare sold for \$100 last spring, and as her purchase price was \$150 you can see it was a very good investment.

So People Live Longer

[CONTINUED FROM PAGE 3]



Here is the badge the junior health officer of District 83 wears

displays of the preventive measures used in the treatment of preventable diseases, such as the anti-toxins, toxins, bacterins."

Here is a bulletin typical of those issued by Dr. Montgomery to supplement the health work among the school children entitled, "Hygiene of Children's Teeth":

"Decayed and diseased teeth, on account of their defective surfaces, not only make a thorough treatment of the food in the mouth impossible, but they are the means of producing, developing, and nourishing that which is hostile to the child's physical welfare."

"The pockets of decayed teeth harbor many bacteria of a serious sort, notably of diphtheria, pneumonia, and tuberculosis. It is of the greatest importance that children shall have clean and healthy mouths."

"Begin work upon school children before serious decay has occurred in their permanent teeth, and continue the supervision and necessary repair work through the twelfth year."

"Forty per cent of the school children have defective teeth, and for this reason, and for this alone, good work can be done."

How the comfort and welfare and health of the school children is taken care of in the schoolroom is shown in this sample excerpt from the "Riley County Health Magazine":

"When a teacher accepts the place of instructor in a rural school she assumes many responsibilities for the children besides a correct training in the three R's."

The physical well-being of the child is so entirely under her hand for six or seven hours of each day that she must be alert to all the conditions which affect it. There must be plenty of fresh air for everybody; yet no one must suffer from a draft. So she finds a way to lower windows from the top, and changes the amount and position of the entrance of the air according to the climatic changes of the day."

"She knows that eyes suffer from a glare of light upon them, so on bright days she draws the shades on the sunny side, but she also knows that the eye is just as seriously injured by using it in a dark room, so on cloudy days she raises the shades to the top of the windows and wishes the windows were wider and higher. As she visits about over the neighborhood she observes that some of the houses are kept very warm, while others are comparatively cool. It is likely the children in the cool homes will be more warmly clad than their neighbor from the warm house."

"So in seating the children she gives the more thickly clothed the warmer places, for while a child cannot be allowed to be cold in the schoolroom, there is nothing more likely to make a pupil appear stupid and dull than to be dressed for a temperature of 72 degrees and kept in one of 84 degrees."

What to Do Now

These paragraphs also were taken from a number of the "Health Magazine":

"Do it now—what? Repair and freshen up with paint the schoolhouse. Get it ready this summer to receive your children when the fall term of school begins."

"Two little brothers in one school are so hard of hearing that from the front seat they can hardly hear what the teacher has to say. Should they go through life hampered in this manner if medical aid would correct their trouble?"

"If your schoolroom does not contain at least 225 cubic feet of air space for each child enrolled, you should insist on enlarging the building or cutting down the attendance."

"The time is near at hand when we will have a visiting nurse in the rural districts. Why not? The health officer knows of four instances where babies could have been saved if only these mothers could have had instructions as to proper feeding of these infants."

"Now is a good time to correct stoop shoulders among the children. Nine months in the year at a desk has a tendency to develop round shoulders, especially in the growing child."

Dr. Montgomery has an office in the county court house at the county seat, Manhattan, just like any other county official. The doctor or an attendant is in the office from 8 A. M. to 5 P. M. Interesting and instructive exhibits pertaining to the many phases of disease prevention decorate the walls. Charts explain in big bold letters how to fight

typhoid fever, whooping cough, measles, mumps, and other diseases. There are exhibits of the different vaccines and serums and equipment used in their administration. Samples of quarantine cards, sanitary towels, drinking cups, and soap containers and fumigators are a part of the display.

On a large blackboard, which hangs on the wall just outside the doctor's office, are posted the names, addresses, and date quarantined of all the persons suffering from contagious diseases. When they are discharged their name is taken off the board. Many of the cases are taken to the contagion hospital.

This appears on one of the charts used by Dr. Montgomery in his illustrated lectures to the school children: "Don't neglect a cold or sore throat. Don't exchange pens, pencils, clothing, or hats. Don't spit on the floor or playgrounds. Don't chew the corners of your books. Don't neglect your teeth. Brush them. Don't eat too much or too often of sweets. Don't fail to look both ways in crossing streets or roads."

Marks Farm with Quarantine Card

"Whenever a person is quarantined in the country," continued Dr. Montgomery as he gave me another sheaf of health bulletins, "a small card designating the disease is hung on that farm on the large county map hanging on the wall. In Manhattan each house that has been quarantined is recorded on the city map. This map shows the houses in which diseases have occurred for the last three years."

"Quarterly inspections are made of all slaughter houses in the county, and close watch is kept on the milk supply."

Here is one of the bulletins on "How to Avoid Taking Cold": "Colds are catching. If a boy or girl talks thick and is always sneezing, blowing his nose, and making a general nuisance of himself, just move on—have business somewhere else. If you don't you are liable to contract this same trouble."

"A safe way to avoid this condition is to lead the physiological life, 'Early to bed and early to rise.' Sleep at least eight hours; bathe well; eat three meals of wholesome food a day, with plenty of time for each meal. Be in the fresh air at all times day and night, avoid dusty, damp, or foul air; work only in well-ventilated rooms. Wear suitable clothing for all seasons of the year. Do not sleep in the clothing you wear in the daytime; use bed sox if your feet are cold. Wear your chest protectors on your feet. Protect your chest well, but not enough to impede breathing, upon which good health depends. Avoid getting your feet wet. Breathe deep, keeping the mouth closed and using your nose. Avoid stimulants and so-called cold cures. Treat a sore throat until it is well. Above all things, don't neglect a cold, it may lead to more serious complications—pneumonia and consumption."

Another of the bulletins issued by the county health officer contains this: "The following report may give some of our people more patience with our quarantine laws. The epidemic of measles in 1913 had its origin thus: A mother and child were waiting for a train in the Union Station at Kansas City—destination Manhattan, Kansas. A little girl in the next seat was broken out with measles; had a high fever and a bad cough."

"Two weeks later the exposed child was taken sick with measles. Four college students were rooming with the people whom this mother and child were visiting. Ten days later two of these students were telling what a severe cold they had, and how they felt, but they went on to school until quarantined for measles. The exposure had been completed. Others came down."

"Reports began to come to this department until we recorded 540 cases of measles within the boundaries of Riley County; also the deaths of four babies to whom this disease is very fatal. Many other persons will go through life with some defect due to this disease. Doctor bills and other expenses must have been great, all due to this so-called 'harmless' little disease to which a child was exposed while waiting for a train in Kansas City."

We shall be glad to hear from you about any health work being done in your county. If you wish more details about the county health-officer plan we shall be pleased to send it to you. Address Health Editor, FARM AND FIRESIDE, Springfield, Ohio.

Klaxons say "Supper Time" on big ranch in Peru

THE sound of Klaxon automobile horns is music to the ear of ranch hands in Peru. It means time to stop work and come in for supper.

The big ranches there stretch out for miles. A way was needed to summon the hands. A steam whistle was impractical—it was a difficult problem—until one day one of the ranchers heard a Klaxon on an automobile in Lima.

He bought several and put them on posts a mile apart—all over his ranch. Now it is simply a question of pressing a button. The men in the fields hear the Klaxons. In they come.

600,000 automobilists depend on this same Klaxon carrying power to herald their approach around the turns of coun-

try roads; and in the noisy traffic of city streets.

The Klaxon is so universally used among motorists that the word "Klaxon" has come to mean "auto horn"—and many horns which are not Klaxons are sold as Klaxons to unsuspecting motorists. To be sure, look for—and find—the Klaxon name-plate.

There is a Klaxon for every kind and size of automobile—for trucks, motorcycles, motor-boats—from the Hand Klaxonet at \$4 to the large Klaxon at \$20. Klaxons are made only by the Lovell-McConnell Mfg. Co. of Newark, N. J.

LIFT THE HOOD AND SEE IF THE HORN ON YOUR CAR BEARS THE KLAXON NAME-PLATE.

This nameplate is your protection against substitution

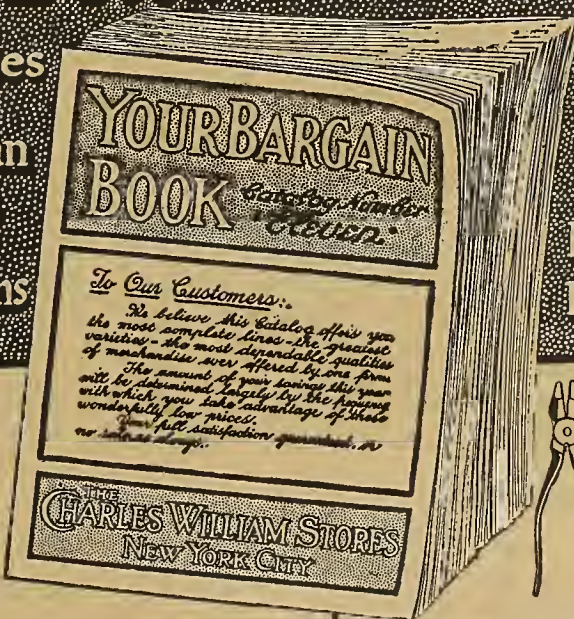


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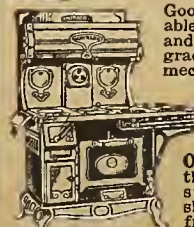
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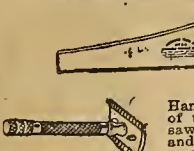
This book weighs nearly four pounds, but we gladly pay the postage on it. Five immense buildings—the original 11-story building; the six-story building added during the first year; the five-story and eight-story buildings added during our second year; and the great 16-story concrete building added this year, the tallest concrete building in the world—it takes all these buildings together to house the stocks of merchandise carried by the Charles William Stores, but this new book sets them all before you in your own home.

Charles William Stores

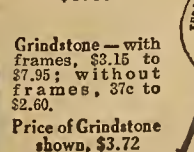
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Price \$33.25 and takes less space than two stoves.



Regular \$5.00 Gillette Safety Razor Set—our price \$3.47



Grindstone—with frames, \$3.15 to \$7.95; without frames, 37c to \$2.60. Price of Grindstone shown, \$3.72

Tools Good, reliable, serviceable tools for the farm and household. Better grades for the average mechanic. The very best made for the expert—and all at astonishingly low prices.

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Hand, 14c to \$1.90. Made of the best quality crucible saw steel. Fully warranted and will stand an immense amount of hard wear.



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In our catalog we show buggies as low as \$26.95, also a full line of road carts, surreys, spring wagons and pony vehicles at money saving prices. Send today for our vehicle proposition No. 72F90

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Outlast three or four ordinary roofs yet they actually cost less! No painting or repairs necessary; rot-free, weather-rust-proof. Insurance cost is less because Edwards guarantee their roof against lightning. Easy to lay—no special tools needed.

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To Keep Out of Mud

Concrete Walks are Built at Small Cost

By MILLARD SANDERS

PROPERLY constructed concrete walks can be built for nine to eleven cents a square foot, are permanent, require no repairs, and are cleaned easily. The material and labor cost varies with the experience of the men doing the work, the location of the walk, the amount built at one time, and the width.

Seven to eight cents a square foot has been the material cost of many concrete walks with a labor cost of two to three cents. Less money is needed with which to build a walk if one does the greater part of the work himself.

"A three-foot walk serves the purpose on my farm," an eastern Kansas farmer replied recently when asked about his experience with concrete walks, "and the cost is 33 cents a running foot. I don't see how I got along without it. I used a nine-inch cinder subbase, a four and one-half-inch base of one part cement, two and one-half parts sand, and five parts of crushed stone, covered with a three-fourths-inch top of one part cement and one and one-half parts sand. The stone ranged in size from one-fourth to three-fourths inch. I used a good grade of coarse sand that passed through a one-fourth-inch screen. The mixing was done by hand.

"The next walk I build," he continued, "will be a one-course walk. I believe I can build it about a cent a square foot cheaper than the two-course walk. And it is just as good. I always hire experienced men to do all of the work, because if the materials are not mixed and laid properly the walk is no good."

Some crews of workmen will lay more than 700 square feet of walk in a ten-hour day, and the prices of the materials vary. Many places cinders are not to be had, while crushed rock or broken bricks are plentiful. Never use ashes in a concrete walk.

Here is the cost, itemized, of 100 square feet of a single-course concrete walk when all of the materials and labor are contracted:

One finisher @ \$5 a day.....	5.00
Five laborers @ \$2.50 a day..	12.50
Total cost of labor for 700 square feet	\$17.50
Total cost of labor for 100 square feet	\$2.50
2.42 barrels cement @ \$1.50..	\$3.63
1.08 cubic yards stone @ \$1.50	1.62
.73 cubic yards sand @ \$1.25	.91
2.7 cubic yards cinders @ \$.50	1.35
Total cost of material for 100 square feet	7.51
Total cost of laying 100 square feet	\$10.01

To prevent slipping, a concrete walk should be finished rough. Three-foot walks are drained by giving the top a crown with a pitch of three-eighths inch.

Use Good Materials

The entire mass of a one-course walk is a wearing surface. A four and one-half-inch one-course walk of a richer mixture is as strong and durable as a five-inch two-course walk. There is not much difference in the amount of materials used.

Good materials must be used, and proper methods of mixing and placing must be followed if the concrete walk is to remain hard and in position. Only in this way can be prevented settlement cracks, upheaval by frost or roots of trees, contraction cracks, crumbling, and general failure. A well-drained subbase prevents upheaval by frost. Roots of trees, if cut off 18 inches below the subbase, will not cause an upheaval of the walk.

The tools and equipment needed to make concrete for general farm use as well as for sidewalk building are not expensive. Many farms have a part or all of these tools, and they can be used for many other purposes. This is the list: Two No. 3 square-pointed "paddy" shovels, one round-pointed garden spade, one heavy garden rake, one sprinkling can, one water barrel, one home-made wooden tamper, one sand screen, made of a section of one-fourth-inch wire mesh

nailed to a wooden frame, one measuring box, one mixing board, and two wheelbarrows with steel trays.

A machine mixer is not needed, as hand mixing gives good results when the work is done carefully.

"Staking out the lines of the walk, excavating to a depth of 16 inches, ramming and tamping the ground thoroughly and evenly are the first steps I perform in building a concrete walk," said a western Pennsylvania farmer when talking about permanent walks for farms. "Then I fill in with 12 inches of clean large cinders or broken stone. Broken tile, pebbles, or broken brick will do. I do not think it is necessary to use so many cinders to build a good walk, but they are available and I use them."

Then this Eastern farmer places in position wooden frames made of 2x4's set on edge. Every three or four feet, depending on the width of the walk, he places a crosspiece the same size. The 2x4's are held in position by stakes firmly driven in the ground. The top of the 2x4's outline the grade of the walk.

"I use one-course work of one part cement, two of sand, and four of crushed stone," the Pennsylvania farmer explained. "And I mix the concrete so that when it is tamped

it will not quake. It should be wet enough, though, so water will rise to the surface under tamping."

"Every other form made by the cross-pieces is filled with concrete," he continued, "until all of the concrete mixed in one batch is used. I never let a batch stand longer than half an hour. I heap up the concrete a little and tamp it down to grade. All of the forms are finished before others are started. A part of a form is not left to stand at quitting time, because when the new work is started it does not bond with the other and a crack may result.

Driveways Made Thicker

"I pack the concrete against the cross forms, and when the placing of the concrete is resumed it will start from a vertical joint between abutting slabs. No slab of the walk should be longer than one and one-half times its width. My walks are two and one-half and three-foot walks. I place the concrete four and one-half inches thick except where a driveway crosses it, then I add two inches more to the depth of the concrete."

One-half-inch expansion joints should be placed every 50 feet. A metal or wooden strip is left in the walk until the concrete has hardened. The joint should be filled with tar or tamped tar paper. Sand or soil is little better than concrete for an expansion joint, because they become hard and cannot be pushed out by the expansion of the concrete.

Successful builders cover the finished walk with hay, straw, or old carpets and sacks for three or four days. The covering is soaked with water and kept wet. Persons and animals are kept off the walk until the concrete has hardened.

If you want any information about cement and what you can buy it for, write to Cement Editor, FARM AND FIRESIDE, Springfield, Ohio.

Farm and Car from \$250

By Glenn C. Wood

FIVE years ago last spring I purchased 60 acres of rolling land that sloped to the south. The soil is a sandy loam, but it was badly run down, with no buildings, and the fences were as good as none. I had only \$250 to invest in this land, so I gave a mortgage of \$2,000. My chattels consisted of a team of horses and a few farm tools.

Three years ago I married and built a four-room house and some outbuildings, which I paid for. I then bought an automobile which has given us great pleasure and satisfaction, and has been useful in taking dairy products to market.

By careful managing we have reduced the \$2,000 mortgage to \$600. I am told that I made a lucky deal when I bought this farm.

WISE HOSTESS

Won Her Guests to Postum.

"Three great coffee drinkers were my old school friend and her two daughters. They were always complaining and taking medicine. I determined to give them Postum instead of coffee when they visited me, so without saying anything to them about it, I made a big pot of Postum the first morning.

"Before the meal was half over, each one passed up her cup to be refilled, remarking how fine the 'coffee' was. The mother asked for a third cup and inquired as to the brand of coffee I used. I didn't answer her question just then, for I heard her say a while before that she didn't like Postum unless it was more than half coffee.

"After breakfast I told her that the 'coffee' she liked so well at breakfast was pure Postum, and the reason she liked it was because it was properly made.

"I have been brought up from a nervous, wretched invalid, to a fine condition of physical health by leaving off coffee and using Postum.

"I am doing all I can to help the world from coffee slavery to Postum freedom, and have earned the gratitude of many, many friends." Name given by Postum Co., Battle Creek, Mich.

Postum comes in two forms:

Postum Cereal—the original form—must be well boiled. 15c and 25c packages.

Instant Postum—a soluble powder—dissolves quickly in a cup of hot water, and with cream and sugar, makes a delicious beverage instantly. 30c and 50c tins.

Both forms are equally delicious and cost about the same per cup.

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saves time and trouble. Don't be imposed upon. Refuse the poorly made, flimsy imitations. A poor tool is dear at any price. Reliable dealers sell the original, patented, "guaranteed Iwan" for only \$2. It pays for itself in one day's work.

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A Cucumber Secret

By John T. Timmons

IT IS frequently noticed that cucumber vines are rather unprolific, and even with good soil and no trouble with the cucumber beetles, there are but few cucumbers set on the vines.

Extensive pickle growers in some sections of the Northwestern part of the country claim that to get a large yield of cucumbers the vines must be trained to run as near toward the east as possible.

They say the blossoms must open to the east while the dew is on, and it is at this time the fertilization of the pollen is done which produces the crop.

It is an experiment well worth trying. Anyone with a small quantity can very easily determine by a little experimental work if there is anything in the scheme.

Hurrying Up the Garden

By E. I. Farrington

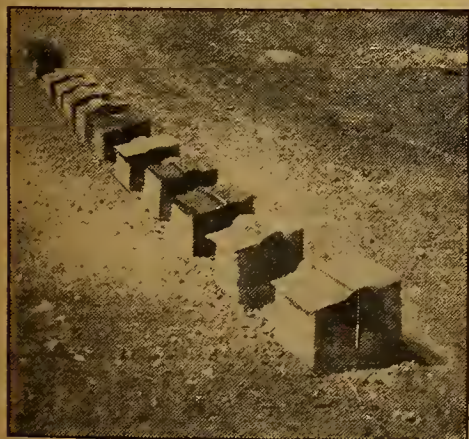
THERE are several devices for forcing early flowers and vegetables. One of the best is simply a miniature cold-frame, and can be made at home by using boxes eight or ten inches square, without top or bottom, but with a light of glass over each box. The glass may be made to run in grooves, or may be held in place by large-headed tacks, but it must be made to slide in order that ventilation may be given.

Another kind of forcer is made by inserting lights of glass into a light wire frame, giving a continuous A-shaped covering. While the box forcers are commonly used for crops in hills, like melons, cucumbers, squashes, and the like, whole rows of sweet peas, beans, strawberries, and lettuce can be covered with the continuous forcer.

By using these miniature cold-frames in one form or another, all the common seeds and plants can be started outdoors as soon as the ground can be worked, and several weeks before many of them could safely be planted unless protected. Extra early asparagus may be obtained by setting frames over a few plants, and in the flower garden peonies and the spring bulbs may be forced in the same way.

It is hardly worth while sowing the seeds of such tender vegetables as melons and cucumbers much more than ten days ahead of the regular planting date. They will not germinate much earlier, but the plants will make very rapid growth when once started.

The forcers for melons, squashes, and cucumbers also protect from the striped beetle and the cutworm. When it becomes necessary to uncover the frames as the weather gets warmer, little strips of mosquito netting may be tacked over the top to exclude the beetles.



These little glass-covered boxes retain the sun's heat and protect from frost and insect pests

Twenty Acres of Radishes

By M. G. Kains

ONE truck grower with whose operations I have become familiar grows five to twenty acres of radishes each year as a "fill-in" crop. Usually he sows the seed in young peach orchards, or where trees have failed in old ones, or in young asparagus beds. Generally the crop lasts from the latter part of April to the middle of May.

The ground is worked in the spring as early as possible, and a fine seed bed secured. The seed is sown broadcast by

hand at the rate of six to eight pounds to the acre. After sowing, the ground is firmed, and the seed covered with a weeder implement which merely scratches the surface and buries the seed slightly. No further cultivation is given. The crop is found to be best when a high-grade commercial fertilizer is applied at the opening of the season at the rate of about 400 pounds to the acre. Nitrate of soda is later applied every ten days or so at the rate of 150 pounds to the acre.

The radishes are pulled, bunched in the field, hauled to the packing house, washed, and packed roots upward in vegetable baskets. The number of roots to the bunch varies from 10 to 15, according to the size. This grower often ships 700 baskets of radishes a day during the season. This crop sometimes returns \$150 an acre.

Tons of Figs from Tree

By Lavinia Miner

WHEN I was quite a small girl I read about a man living in a North Atlantic State who raised a fig tree in a tub which produced a crop of 80 figs. I remember that I pitied that man.



This California fig tree is almost an orchard in itself. At retail prices one crop would sell for about \$100

I ran and petted my old fig tree under which I had played all of my life.

This fig tree is of the Mission variety. It was planted by my father thirty years ago, and is now forty-six feet tall, nine feet in circumference at the base of the trunk, and has a spread of limbs reaching fifty-four feet. But the best part about this fig tree is that it bears a ton or more of figs every year.

SPRAYING potatoes to prevent blights and insect depredations averages \$5 per acre according to cost figures determined by the Cornell Experiment Station. If careful and thorough spraying is done the crop may be expected to increase from 40 to 100 bushels to the acre as a result of the spraying, reckoning a series of years.

Spiders Give Aid

By John T. Timmons

VERY frequently the tiny black flea beetle is very troublesome on the young vegetable plants, such as tomato, cabbage, eggplant, and others, and often kill many of the plants.

Much trouble is experienced in growing dahlias from seed on account of the same pest.

We can secure very valuable assistance from spiders if we only offer the friendly spiders a little protection.

Place a handful of dried lawn clippings, not freshly cut grass, about each plant, near the stem, and this will afford one or two spiders a shelter and a place over which to spin their webs, and the spiders will soon rid the plants of the flea beetles.

Green aphids and the white fly are sometimes in abundance on such plants, and these too are food for the spiders.

Lawn trimmings are easily dried, and are frequently found useful as a mulch, and particularly in such service as above described.

Texas Kitchen Garden

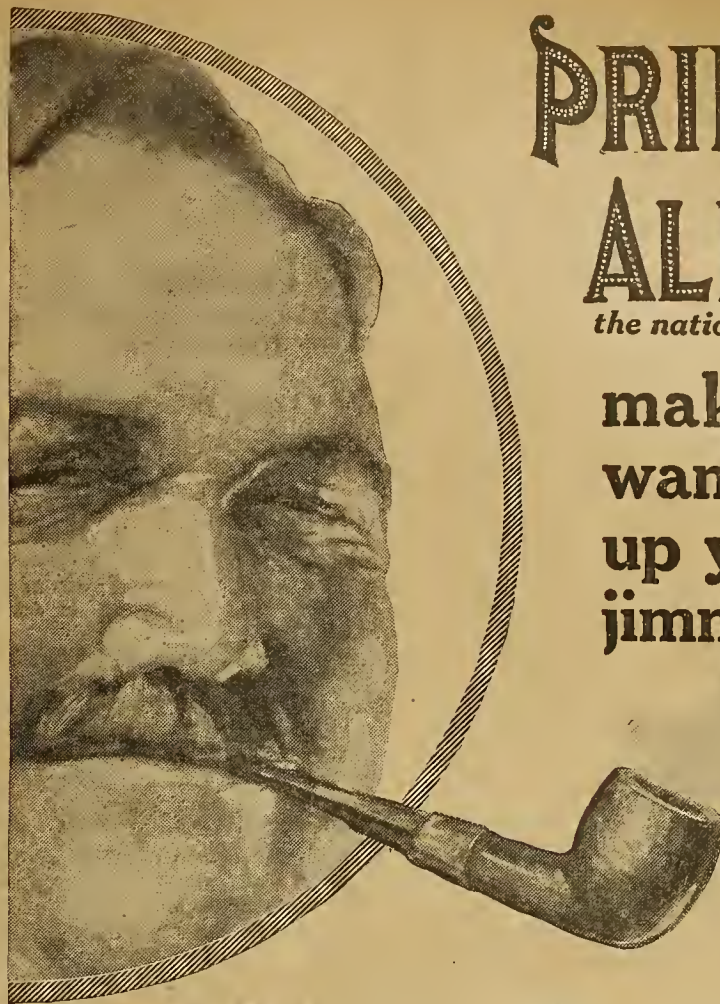
By Bertha Wells

NORTHERN FARM AND FIRESIDE readers may like to know how the Texas housewife provides her table with fresh vegetables. We think our season is rather late here in Harris County, and do not plant our seed for early use, such as early cabbage, onions, radishes, mustard, lettuce, and spring turnips, until February. In March we plant beans, cucumbers, watermelons, cantaloupes, and peas.

I plant my early cabbage seed in a box or frame in the garden about February 1st. From the first to the fifteenth of March I set the plants in open ground.

For tomatoes I prefer Perfection and Magee.

I need not say that Texas grows great quantities of garden truck for Northern shipment. It is the fresh garden supplies for the home table that I am most interested in.



PRINCE ALBERT

the national joy smoke

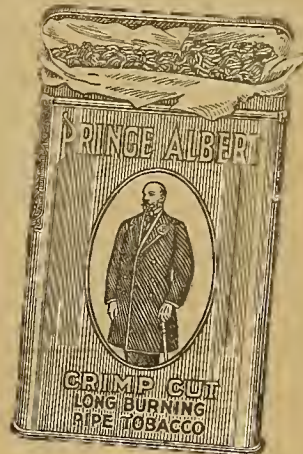
makes you want to fire up your old jimmy pipe!

Copyright 1916 by R. J. Reynolds Tobacco Co.

PRINCE ALBERT tobacco throws open the gates to every man fond of a pipe—it's so friendly! Just makes smoke joy possible for all degrees of tender tongues and tastes! The patented process cuts out bite and parch! And you can't get better proof than the fact that Prince Albert is today smoked not only throughout the United States, but all over the world!

First thing you do next, locate that old jimmy pipe; invest 5c or 10c for a supply of P. A. And fall to like you are on the right track. For Prince Albert is better than the kindest word we ever have said about it. And you'll find that's right!

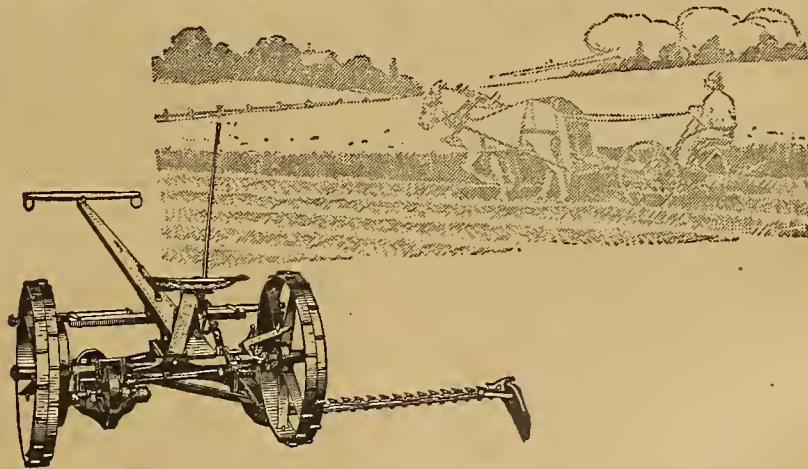
You can buy Prince Albert everywhere in the tippy red bag, 5c; or the tidy red tin, 10c; in pound or half-pound tin humidors or in the handsome crystal-glass pound humidor with sponge-moistener top that keeps P. A. fit-as-a-thoroughbred!



On the reverse side of this tidy red tin you will read: "Process Patented July 30th, 1907," which has made three men smoke pipes where one smoked before!

R. J. REYNOLDS TOBACCO CO., Winston-Salem, N. C.

Remarkable I H C Mower Record



LAST spring when Lester Brown, of Ottawa, cut his 40-acre alfalfa field with an I H C mower, he completed just about one-millionth of the total work done by I H C mowers during 1915. That interesting fact presents in a striking way the popularity of the reliable mowers and rakes sold under the old trade names—Champion, Deering, McCormick, Milwaukee, Osborne and Plano.

I H C mowers and rakes were the first ever made. Their sales have grown larger steadily, year by year, showing plainly what the farmers who use them think of them. They cut clean and close in all kinds of grass, clover, alfalfa, or other hay crops. With reasonable care they do good work for many years. It is always easy to secure repairs, new parts, or special service. They are sold by local dealers whose business it is to see that you are satisfied.

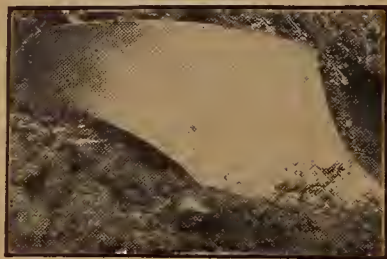
If you are already using I H C haying machines, we need say nothing except to remind you to look over your machines before you take them to the field and order now any repairs they may require. If you have not yet used any of them, see your local dealers, or write us for catalogues and other information about International Harvester haying machines.



International Harvester Company of America
CHICAGO (Incorporated) U S A



Chilled Plows Cost Less



Chilled Plow in Gritty Soil

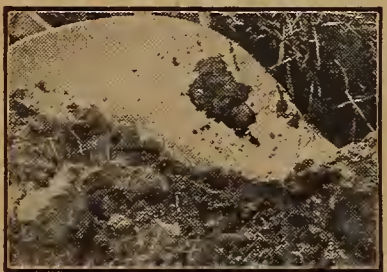
The recent increase in prices of all farm implements causes the farmer to reflect upon the wisest expenditure of his money.

Chilled plows have always been sold for less money than steel. The difference in the price of chilled and steel plows means that if the farmer buys chilled plows now, he will pay less for chilled plows than he has in the past for steel plows.

In all gritty soils the chilled plow will do better work than the steel and lasts from two to three times as long. Chilled plows will do better work in many localities where steel plows have been used. Have you thought of this?

Chilled repairs are cheaper than blacksmith bills.

If you want to do more plowing at less cost, write us.



Steel Plow in Field Above

Oliver Chilled Plow Works
Plowmakers for the World
South Bend, Indiana

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Write for our free catalog. The new 1916 Arrow shipped to you at our risk without a penny down. If you are not delighted send it back at our expense. It costs you nothing. Write now.

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SPLIT HICKORY
Famous for beauty, comfort and quality. Nearly a quarter of a million now in use. My new catalog tells how I have split the price—now only \$39.25 and up. 150 styles to choose from. Write today. H.C. Phelps, Pres. **THE OHIO CARRIAGE MFG. CO.** Station 44, Columbus, Ohio. I Give 30 Days Free Road Test—Two Years Guarantee.



EXTRAORDINARY OFFER—30 days—one month's free trial on this finest of bicycles—the "Ranger." We will ship it to you on approval, freight prepaid, without a cent deposit in advance. This offer is absolutely genuine.

WRITE TODAY for our big catalog showing our full line of bicycles for men and women, boys and girls at prices never before equaled for like quality. It is a cyclopedia of bicycles, sundries and useful bicycle information. It's free.

TIRES, COASTER-BRAKE rear wheels, inner tubes, lamps, cyclometers, equipment and parts for all bicycles at half usual prices. A limited number of second hand bicycles taken in trade will be closed out at once, at \$3 to \$8 each.

RIDER AGENTS wanted in each town to ride and exhibit a sample 1916 model Ranger furnished by us.

IT COSTS YOU NOTHING to learn what we offer you and how we can do it. You will be astonished and convinced. Do not buy a bicycle, tires or sundries until you get our catalog and new special offers. Write today. **MEAD CYCLE CO., Dept. D-83, CHICAGO, ILL.**



Live Stock

Muddy Lots; Waste Feed

MUDDY feedlots are one of the most common annoyances that the stockman has to put up with. When the mud is deep in the feedlot, stock doesn't do very well. Hogs have to hunt through the mud for corn, and the cattle haven't a place to lie down. This prevents both cattle and hogs from putting on the gains they should.

Where hogs aren't following fat cattle, the problem is solved by using a feeding floor. This can be made of wood or concrete. It is cleaned easily, and will soon pay for itself in the feed saved.

To Prevent Blackleg

LOSSES of young cattle from blackleg can be prevented. A serum has been discovered that will in the majority of cases prevent blackleg among cattle.

Blackleg is a germ disease. Young stock is susceptible generally when first turned on the pastures in the spring or when the pastures have been revived by rains after dry weather. Fat, thrifty cattle are most likely to be taken. It does not often attack calves under four months old, nor mature cattle more than two years old. A vaccine treatment has been used for a number of years with fair results. The vaccine gave the cattle the disease, and as it was never known just what strength the germs in the vaccine had, many times the vaccinated cattle died of blackleg.

The serum is made from the juices of the muscles of animals that have died of blackleg. It is injected into the animal and makes it immune. The serum is free of germs. Another way the serum is prepared is by using the blood of animals having blackleg. The fibrin is removed, the serum is filtered, and preservatives added.

When to Breed the Ewes

FLOCKMASTERS have or are now removing the rams from the ewe flock. The gestation period of the ewe is about 150 days; hence, if the ewes are bred now they will give birth to their lambs during the hot summer months.

If you desire to supply the fancy Christmas trade, the ram should be turned with the ewes in May or June. But the rams shouldn't run with the ewes until the breeding season. In most parts of the country, lambs born during the summer months don't grow as rapidly as those born in spring or fall.

Before the Sow Farrows

A WEEK or ten days before the sows are due to farrow, they should be separated from the rest of the hogs. It is a good plan to have the sow accustomed to her new surroundings before she farrows. Guards made from 2x4's placed around the inside of the pen walls, about five or six inches from the floor, will prevent the sow from lying on the pigs.

If the sows have had the right kind of feed and plenty of exercise, they will give little trouble at farrowing time. I well remember one of my sows, because she had been overlooked by the hired man, was left with the fat hogs until I

was checking them over about two weeks before they were due to farrow. This one sow was missing from the brood-sow group. A visit to the fattening pens revealed the sow. She was much too fat, and had been eating all the corn she could clean up nicely, for several weeks.

She was put in a box stall and fed tankage, with skim milk and a little corn meal. She was given all of the water she would drink. Salt, ashes, and charcoal were placed in a box where she had free access to them. That sow was a night and a day farrowing two pigs. That was the last of January. The following June the same sow, after she had been running on clover and alfalfa pastures, with oats and a little corn as a grain ration, farrowed eleven pigs while I was at dinner. She raised eight of the pigs, while with the winter litter one died of thumps in spite of the exercise I forced the two pigs to take. But as the weather was extremely cold I was afraid to leave them out of the pen very long at a time for fear they would get chilled.

Defeat the Botfly

By O. C. Emory

I WAS interested to read in FARM AND FIRESIDE a plan for preventing botflies from annoying horses. Here is a remedy I have successfully used for this purpose to discourage all kinds of insect blood-suckers that prey upon farm animals: Mix one-half pint kerosene oil, one-half pint turpentine, one-fourth pint flaxseed oil, and use a cloth or sponge to moisten the hair on the parts of the animal most frequented by the flies. You will not find any botflies or any blood-suckers around your horses or cattle as long as there is any smell left on the hair. An application two or three times a week will answer the purpose.

I have used this remedy for years with much satisfaction.

Freeing Hogs of Lice

OFTEN when the hogs are off their feed or out of condition, it is because they are furnishing the sustenance for large numbers of lice. The skin of the hogs soon becomes covered with scales and sores. The irritation caused by the lice worries the hogs, and they don't grow and fatten as they should. Little pigs are especially handicapped by lice.

Preventive as well as destructive measures against lice are needed to prove effective. The sleeping quarters of lousy hogs become infested with lice, which crawl from the hogs to the crevices in the building and in the bedding. Eggs on the hair that the hogs have shed will hatch. These lice reinfest animals from which lice have been removed. Now that the weather is warm enough to permit the hogs' being out of doors more, and in some parts of the country all the time, the problem is simplified. The bedding can be carried out and burned, and the interior of the hog houses given a thorough cleaning, and painted with a white-wash. This should contain one pint of crude carbolic acid to every four gallons of whitewash.

Dipping hogs is the most effective way to rid them of lice. And the early spring days see the hogs on many farms getting their first plunge in the vat since last fall.

The vat should be deep enough so the hogs can be pushed under the dip and will have to swim to get through. As lice are commonly found on the inside of the legs, behind the ears, on the breast, back of the forelegs, or in the folds of the skin, it is necessary that the hogs be immersed in the dip.

Use a reliable dip, and repeat the dipping every month, or oftener during the late spring and summer months. If you want any information about a dipping vat and the dip to use write to the Live Stock Editor of FARM AND FIRESIDE.



A sow that has had plenty of exercise and is not too fat is most likely to produce large, healthy litters

HANDY HUSBAND

Knew How to Get Part of the Breakfast.

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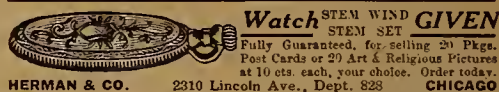
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Narrow Escapes

How Gumption and Luck May Save People

By OUR READERS

A Tennessee Cyclone

By N. E. Smith

THE sky became so dark that many people had to light their lamps. The atmosphere took on a strange purple hue, while a strong wind swept across the river, carrying branches of cypress and sycamore from a distant swamp.

A moment more and the gigantic funnel-shaped black cloud leaped the river and tore its way through the swamp, mowing down immense trees as if they were straws, and striking our large two-story frame building with full force.

We were seated in the large entrance hall in the center of the building when the first whirl of the cyclone caught us. It took our breath and swept us into the rear hall. Outside, bricks, timbers, and branches of trees were being hurled about with terrific force.

We stood for a few seconds listening to the roar of the storm and the crashing of timbers. Our four large brick chimneys fell with a crash. Then we were enveloped in a dead calm—not a sound, not a breath of air, just a suffocating silence beyond description.

Just a few second of this calm in the vortex of the cyclone, although it seemed like hours, when we were caught in the second whirl of the cloud. The entire front of the house was carried away, the roof and second-floor ceiling removed and completely demolished, and the interior of the first floor wrenched and twisted, partitions torn loose, and ready to collapse at any moment, ceiling and floors hanging by only one beam, every window shattered, stairs torn loose at top and bottom, and the whole house on the verge of collapsing.

All this occurred in less than three minutes, and we made our way out rejoicing that we were unhurt. Hundreds were killed in that cyclone.

Saved by a Dog

By L. A. McLaughlin

ONE Sunday afternoon about six years ago I had my narrowest escape. Just after dinner I told my wife that I would take a bucket of slop and bran mash to our big Berkshire sow which had a fine litter of ten pigs, two days old, down in the spring pasture. I had bought the sow some weeks before, and she was still rather wild and restless in her new home.

As I reached the pasture gate near the barn and looked back, I saw my four-year-old son and his fox terrier Trixie following me. I thought at once that it would be imprudent to have a child and a dog in the same enclosure with a vicious mother sow, so I kindly ordered them both to go back to the house. But the little fellow begged me so earnestly to let him go along that I finally consented, but insisted that he drive his pet dog back.

We entered the pasture and, having gone down the hill some 200 yards to some woods near the spring branch, found the sow and pigs lying in a comfortable bed of leaves. I called the sow, and as she came hungrily forward I set the bucket of slop down and stepped back a few paces to watch her eat.

In the meanwhile the young pigs began to move around, and as I turned to count them what should I see but that pesky little dog peeping slyly from behind his master's blouse dress. They were both some twenty feet away on the bank of the little stream and, trusting that they were out of danger, I did not disturb them.

Turning my attention to the sow, which had nearly finished eating, I was preparing to get my bucket and return to the house when I was greatly startled by a loud and prolonged squeal. Hastily looking around, I saw my little boy was bending over and holding a little pig in both hands while it was kicking and squealing with all its might.

The next instant the old sow, with open jaws, ferocious grunts, and bristling hair, flashed by me like a shot. At the third leap she struck my little boy with a vicious upward blow of her tusks and hurled him over the bank into the muddy stream below.

While these things were happening I had recovered my wits, and seizing the first weapon I could find, which was a piece of dead limb, I rushed forward with a wild cry of rage and grief and madly struck the sow across the nose the second after she had hurled my boy through the air. The dead limb shattered to pieces in my hand, but the sow stood still, partly stunned by the blow.

I leaped into the ditch, expecting to find my dear boy disembowled, but as I picked him up and examined him great was my joy to find that he had been struck in the chest by the sow's nose and not in the stomach by her long teeth. He was unhurt except for one large bruise on his breast, but of course he was crying and terribly frightened.

Clasping him in my arms I clambered up the bank and found the sow was grunting and excitedly running around collecting her scattered brood. Thinking all danger was over, I went forward to get my bucket when the sow, hearing the cries of my boy, suddenly charged down towards me. As she came near, grunting fiercely, I shouted "Souey!" and gave her one or two hard kicks upon the nose. Instead of stopping she became more infuriated by my kicks, and pressed forward more viciously. I was at great disadvantage with no weapons and my little boy in my arms. Therefore, seeing a large tree just to my rear, I was gradually retreating to get behind it when, to my dismay, I tripped over a root and fell backwards to the ground. In that instant I felt all was lost.

As the burly sow rushed upon me I began to kick her back with both feet and to shout lustily, "Here, Jack! Here! Here!" to my large pointer dog, who I knew would come quickly if he could only hear my voice. I was answered from an unexpected quarter. Trixie, my little boy's fox terrier, who heretofore felt that he was an intruder, heard my call, ran forward from the bushes where he had been hiding, and boldly seized the sow by one of her hind legs.

The sow squealed loudly and, turning around, pursued the dog up the hill toward her pigs.

I immediately scrambled up and with my boy clasped in my arms made my way rapidly towards the pasture gate. A few moments later I met Jack galloping wildly down the hill, and I was never more happy to see a dog in all my life.

With a wave of my hand I directed Jack to rescue Trixie from the sow, and we proceeded to the house, where "Mother," with tears in her eyes, rejoiced with us at our narrow escape.

Under a Hay Rake

By W. L. Stratton

SOME years ago, when I lived in Texas with my uncle he sent me out in the field one day to get a sulky rake. I had a very large horse, weighing probably 1,500 pounds, and very gentle except when the singletree bumped against his heels. Then he would run away.

Not knowing this, I hooked his traces up too short and started to the house. As my uncle told me to, I started him in a trot, and then the singletree began bumping his heels. He became frightened and began to run. In jolting, the teeth fell down with the horse running, and so did I. The teeth caught me and dragged me some thirty yards.

I was conscious all of the time, never knowing what would happen, but of course unable to help myself either by stopping the horse or extricating myself from the rake. Fortunately, the ground was fairly level and the points of the teeth stayed down.

There happened to be a stub of a fence post in the lane, and one wheel ran over the end of it and caused it to let me out. The horse ran on up the lane, struck two more fence posts, knocking them off level with the ground; but a third one caught the sulky rake and held it, throwing the horse flat. I came out of the accident with only a few scratches.

To anyone who is driving a strange horse for the first time, I would say that no matter how good a horseman you consider yourself, always inquire about the animal's habits and peculiarities.

THOSE who have had very narrow escapes from death really look upon the slogan "Safety First" as being of much importance. And because most persons have had narrow escapes, the protection of one's self and of others is always of much concern. Three readers here give their experiences. These letters won prizes in our Narrow Escape Contest.

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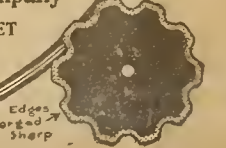
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Crops and Soils

The North Grows Corn

By Harry B. Potter

ALL across the northern part of the United States there is developing an interest in the growing of corn. In 1915 there were 11,121,000 acres of it. But all of it did not mature in fit shape for market, or to be fed except as silage. That fact presents the problem which must be met.

The North is growing corn.

The North is growing dent corn.

The North will continue to grow dent corn.

And it must have the proper seed.

Specialists in corn production say that the man who selects seed from his own or from a neighboring farm or county, or from conditions much like his own, stands a better chance of success than he who gets seed from a strange environment.

The selection of seed corn from the home fields is important. How it is done is a story of never-ending interest. It is interesting throughout the year. It is worth thinking about now that we are planning the planting of our fields as well as later.

Go into the fields of growing corn and study your corn, plants, and growing ears. Pick out and mark in a suitable way those hills and those plants that show proper development. Throughout the growing season study the field, and particularly the selected plants. Select at least three times as many ears as you will need for the next two seasons at planting time. As harvest approaches, keep in the field as much as possible. When the time for the first killing frost comes, go through the field and pick the ears that look mature. The aim is to get a corn that will yield well under the conditions, and that will mature well too. That means that the seed corn must be selected for weight and for maturity. Pick the ears that are mature before the killing frosts come and you will have a start for the sort of a crop desired. Such seed will develop into a crop of well-matured, marketable, feedable corn.

That plan will work, but not without patience, for the first year will not give all of the results hoped for.

In the Northern States one season may not produce as good seed corn as another. That is the reason for taking advantage of a favorable year to supply seed corn for the next two or three seasons. Seed corn will not deteriorate in that time.

If you live in New England, New York, Michigan, Wisconsin, Minnesota, the Dakotas, Montana, Idaho, or Washington, and do not have good seed this year, it would be well to get in touch with seed concerns that have seed for your section of the country. Or it may be that the Office of Corn Investigations, U. S. Department of Agriculture, Washington, D. C., will have some information and possibly some seed that would help you out. Or perhaps, better still, write the editor of FARM AND FIRESIDE, Springfield, Ohio, and he will see that your requests are taken care of in the best possible way.

Supplies Good Seed Bed

By E. W. Houston

THE way I turned loss to profit was to plow as deeply as possible, and float and harrow till I had a seed bed like a garden spot. Then I limed and manured my ground, and I always have a crop if the season is at all favorable. This thing of doing as our grandfathers did fifty years ago isn't the thing now. We have to study our soils' needs, and supply those needs.

Sprays That Kill Weeds

By J. S. Small

OUT of the many efforts to kill weeds by spraying have come two methods which are practical as well as economical. These do not include the use of such chemicals as sulphuric acid in dilute solution, which, though effective, are ruinous to the spray pumps and metal tanks. The simplest weed-killing solution is a strong brine made by dissolving 150 pounds of common salt in 50 gallons of water. Applied at the rate of 10 to 75 gallons per acre, this spray is said to kill Canada thistles, dandelions, horse nettle, yarrow, and poison ivy.

Do not spray in changeable weather or before a rain. The spray mixture must be on the weeds at least twenty-four hours to kill them. A heavy dew will do no harm; in fact, it helps the weeds to drink in the poison.

Another solution is the standard iron-sulphate solution, made by dissolving 100 pounds of iron sulphate (also known as copperas) in 52 gallons of water. This solution applied at the same rate per acre as the salt solution will kill mustard, ragweed, and other weeds having broad leaves, but it will not kill grain or timothy. Most of the weeds mentioned have a rather spongy leaf texture, and will absorb the poison, whereas grasses and grain, which have fine, smooth leaves, are not injured, though sometimes the tips may be slightly burned.

The best time to spray is early in the season when the weeds are tender.

These solutions may be freely used in pastures, as they will not hurt stock.

Proso Millet: Know It?

PROSO or proso millet (both terms are used) is a variety of millet that grows wild in Siberia and southern Russia. Proso is the Russian word for their common millet. Now it is coming into use in the United States. You may know it better by the name hog millet. It is a good hog feed, but that name hardly does it justice because it is also good enough for people to eat. The grain may be used whole, or it may be ground into meal or into fine flour.

Plows Back and Forth

THIS plow is used on farms made of small garden plots, on experiment stations farms, and on hillsides where plowing around and around is impossible. One can plow a furrow and then, by turning around on the spot, plow back again. This is made possible because of the second plow seen in the picture to be lifted off the ground while the first furrow is being plowed. Inven-



The convenience of such a plow for some conditions justifies the slight extra cost

tive genius makes possible the tool for every kind of work. While plows of this form cost more than the ordinary plows, the expense is justified in the minds of many who own them, because of the character of the work they will do.

Money Saved in Manure

CORN is worth 18 cents a bushel when fed to animals, because of the fertilizing value of the manure that results from the feeding process. In other words and figures, whenever a ton of ear corn is fed to live stock the manure that collects is worth, at standard prices for nitrogen, phosphoric acid, and potash, \$5.25.

In view of the fact that the liquid manure contains about three fourths of the nitrogen, which on the market is valued at 20 cents a pound, it goes without saying that to get the money out of manure as it is produced on the farm when feeding live stock it must be saved and protected.

This is done by supplying sufficient bedding on tight floors to absorb the liquids. On some farms the liquid manures are drained to cisterns or pits. Some maintain that the most economical method of applying manure is to put it on the fields just as soon as it is produced. If this cannot be done, then the manure should be stored under cover in a pit. No danger comes to the manure from such handling, provided it is kept well packed.

"Fire-fanging" can be prevented by keeping it very moist.

SAVE your own vetch seed. It's going to be scarce and high. Most of it has come from Germany and Russia.

Black Cotton Possible?

By J. I. Koon

ARTHUR W. BRABHAM of Bamberg County, South Carolina, is engaged in the effort to cultivate "black" cotton. His experiments have been carried on through six successive years, and last season's culmination is a bronze-hued hybrid staple, produced by cross fertilization of a green-seeded native stock with an Egyptian variety. Through the breeding process he has grown cream, tan, yellow-green, light brown, olive-green, and bronze.

Recently he pointed out what is not generally known—that already four varied tints of cotton are being grown in widely separated areas of the world. These are the cream-colored variety from China, the brown-tinted from Egypt, the coarse gray fabric cotton from India, and the red and brown hues from Peru.

The growing of colored cotton would obviate the necessity of chemical dyes in the manufacture of cotton goods, in that threads colored by Nature could be fed directly into the looms.

Of course this is a dream, but when Luther Burbank was asked for an opinion, he said: "Black cotton is not an absolute impossibility." The process, though, he prophesied, would be long.

The task is beautiful at least to contemplate, although it be problematical in consequence.

One cotton manufacturing establishment in New England, which consumes annually 120,000 bales of cotton for mercerized goods, is making elaborate experiments with the Brabham product. Tests are being made of the tensile strength of the fiber, the fastness of the color, and the calendarizing quality of the cloth.

Should Know Soil History

By M. Roberts Conover

A LIVE church, a good school, fair-minded neighbors, and nearness to rural improvements should strongly influence the farmer who is choosing his home location.

One grower of not much experience chose a farm of good trucking soil miles and miles from any railroad or market. He failed entirely from the difficulty of marketing his produce.

A farm with all its land low or wet, or with all of it high and dry, will offer a serious handicap to the farmer during unfavorable seasons.

It is wise for the farmer actually to know the land he wants to buy. A man who has worked the land for a couple of years starts into the ownership of it with a good idea of what he can do with it.

Where a man is strange to a locality he will have to depend upon such history of the soil as he can gather, and to judge whether it has been overworked with certain crops.

The subsoil has an important relation as well. A clay subsoil is a storehouse for fertility leaching from the soil above. A sandy subsoil lets much plant food pass through it. A good top soil for truck and quick-growing crops should be friable and full of organic matter in varying stages of division and decay. A clay surface soil will grow good corn, potatoes, hay, and grain.

A close, stiff soil admits less air than light soil, consequently it is colder and sooner becomes sour than the lighter soil. Soils that favor the growth of wild huckleberry are often sour. A light soil, termed a droughty soil, will often raise profitable early crops because it warms up quickly. Green manuring helps such soils greatly.

The clay loams contain more potash than do the sandy loams. Apple trees are less likely to winter-kill on well-drained clay lands. With some varieties, as with the Rome Beauty, the quality is better upon sandy soils. Where a man



The farm with a good soil will produce good crops

is going to look to orchards for his future prosperity he must see to it that the land has good underdrainage and surface drainage.

The farm should have available pasture land if stock is to be kept, and if there is a woodlot another advantage is gained.

The house site should be free from malarial conditions, have good drainage, and not be too far from the highway.



Headwork Shop

Brooder from a Duster

AN EFFECTIVE brooder for mild weather can be made of an old feather duster and a box. Remove the cover of the box and cut a hole in the center to receive the shank of the duster. Place some finely cut hay beneath so as to bring the level up sufficiently for the chicks to run among the feathers. For ventilation, bore holes in the sides of the box near the top and cut a small opening for an entrance. Have the cover hinged for convenience in cleaning.

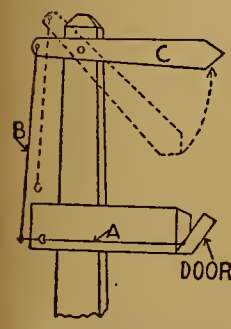
FRANK HAVERLAND, JR.

Stovepipe Easily Cut

SOME people are greatly puzzled how to cut stovepipe when it is necessary to have short lengths. I just punch a small hole in the pipe and use a can opener for all but the seam, which can be bent back and forth till it breaks, or can be cut with a small chisel.

CHESTER G. REYNOLDS.

Tells if Mail is There



THIS signal will be found a great step-saver by those whose mail box is at a distance from the house. The post to which box is attached extends four feet above the box. The cross-arm (C) is painted a bright color and is attached to the post by one bolt which acts as a pivot. A stiff wire (B) runs from back end of arm to the horizontal wire A, attached to box by a loop of leather. One end of wire A is fastened to the door, and when carrier opens the door, wire A is drawn out of the loop on wire B, and the signal falls. The person who goes after the mail then resets the signal for the next day.

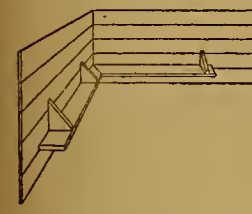
R. W. TAYLOR.

Creosote Stops Gnawing

TO PREVENT my horses from gnawing their mangers and stalls, I took crude creosote and painted all planks and boards within their reach. Since then there has been no gnawing in my stables. Creosote has an objectionable taste, and is so cheap that the treatment is economical compared with the results obtained.

CHESTER G. REYNOLDS.

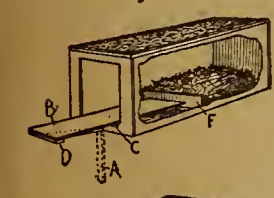
Pigs Safe Under Fender



LITTLE pigs need protection from being crushed by their mother, especially when the farrowing pen has a hard floor and walls. The fender rail shown in the sketch gives protection around the walls where it is most needed. But here is another precaution. When straw is used for bedding, see that it is short and fairly chaffy. Long tangled straw is hard for little pigs to get around in, and may be the cause of a pig's being crushed by the mother even in the middle of the pen.

CARLTON FISHER.

Try This Trap Nest



SOME time ago a writer in FARM AND FIRE-SIDE discouraged the use of trap nests and also mentioned their high cost. Here is a trap nest that is inexpensive and also easily made. The first sketch shows the nest with one side cut away to give an idea of the interior. B is the door. To set the nest, raise the lower end of the door and place the bottom

end of the stick (A) against the cleat (D) on the door. C is a hinge fastening the door to the nest. A is also hinged to the nest.

The hen jumps on the outer edge of the door and walks into the nest. When she reaches the opposite end of the door her weight tips it down a little. This releases A, and when the hen steps into the nest the door closes itself, since the cleat (D) makes that end the heavier. F is a small board to prevent the straw from getting under the door. Make the nest about twice as long as the average nest. The second sketch shows the nest closed. The top of the box is a frame covered with poultry wire and hinged at the back to the nest. To remove the hen, raise the top.

S. L. SULLIVAN.

Easy Gravel-Cleaning

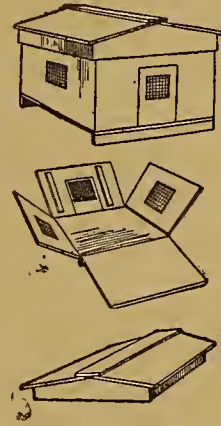
I WANTED to make a cement floor, but I had my doubts about the quality of my gravel. It looked pretty clean, but it was out of an ordinary pit and I suspected there was dirt in it. Of course the proper thing to do was to screen it, but when I looked at those ten big loads all piled up, my ambition to shovel it all over went down below par.

So I put the task off from day to day till two months went by. In the meantime there had been heavy rains, and when I was ready to use the gravel I found it was thoroughly clean except a little on the bottom, and that I used to fill up some mudholes in a driveway.

I'm just beginning to realize now that those rains did a better job of cleaning the gravel than I could have done with shovel and screen.

CARLTON FISHER.

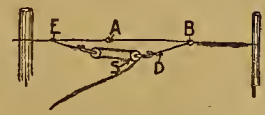
Coop That Folds Up



THE three sketches show a chicken hover of my own design that is convenient in many ways. This sort of coop is very easily cleaned and can be stored away in the winter so as to take up little room. The first sketch shows it standing ready for the brood. The second shows it wide open for airing and cleaning, while the third illustrates how compactly it can be folded up for packing away until the next season. Ventilation is provided by wire netting on the front and two sides. The back is solid.

R. M. McCLURE.

Splice is Easily Made



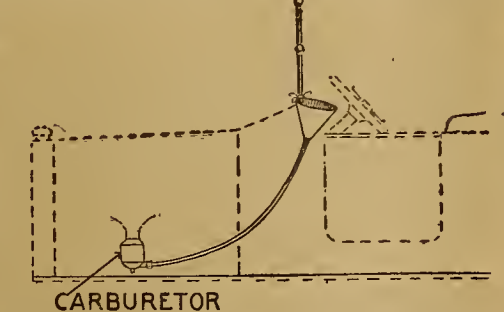
HERE is a method I discovered for making a splice between posts on a barbed wire and leaving it tight after the stretcher was removed.

Make loops on each end of barbed wire at A and B. Take a smooth, flexible wire, such as a telephone wire, double it, and fasten one end of double wire to loop A. Slip the other end through B. Then fasten one end of stretcher to barbed wire at E, and other end to smooth wire D, and pull. When the wire is tight enough, bend smooth wire close together, and tie with small wire to hold while stretcher is unloosed, so that end may be twisted around to hold it. This will make a perfectly tight wire.

H. L. YOTHER.

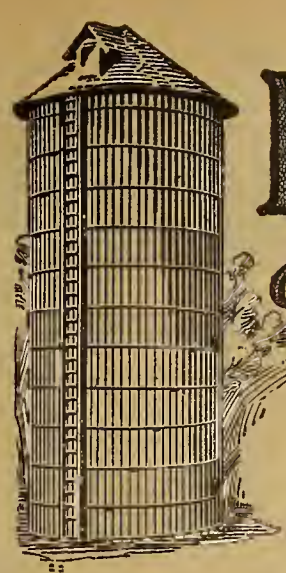
Emergency Gasoline Feed

ON SOME cars the gasoline tank is carried in the rear, and occasionally becomes injured through accident. This of course would allow the gasoline to leak out, but the driver can usually bring his car to the nearest garage by the method shown in the sketch. This



consists in attaching either a rubber tube or the gasoline line to a small bucket or funnel which in turn is attached to some convenient point on the automobile body, allowing gasoline to be carried by the tube to the carburetor. This will no doubt be a great deal of trouble, as the gasoline will have to be poured in at frequent intervals, but it will probably be less trouble and less expensive than being towed home.

W. V. RELMA.



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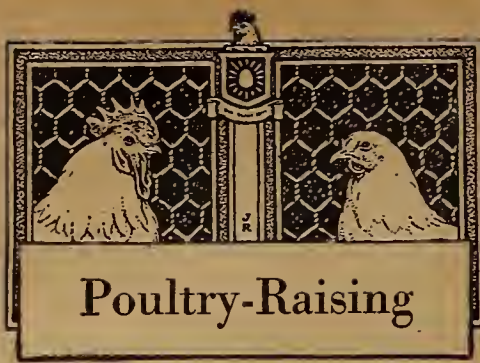
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From Shell to Maturity

HERE is a schedule for feeding chickens from the shell to maturity which has given excellent satisfaction in experiments carried on at the Cornell Experiment Station. Many practical poultrymen recommend this plan of feeding after extended trial.

FEED MIXTURES

Mixture No. 1—
8 lb rolled oats
8 lb bread crumbs or cracker waste
2 lb sifted beef scrap (best grade)
1 lb bone meal.

Mixture No. 2—
3 lb wheat (cracked)
2 lb cracked corn (fine)
1 lb pinhead oatmeal

Mixture No. 3—
3 lb wheat bran
3 lb corn meal
3 lb wheat middlings
3 lb beef scrap (best grade)
1 lb bone meal

Mixture No. 4—
3 lb wheat (whole)
2 lb cracked corn
1 lb hulled corn

Mixture No. 5—
3 lb wheat
3 lb cracked corn

FEEDING DIRECTIONS

Second to fifth days—
Feed mixture No. 1 moistened with sour, skimmed, uncooked milk, fed five times a day; mixture No. 2 in shallow tray containing a little of No. 3 (dry) always before chicks. Shredded green food and fine grit and charcoal scattered over the food.

Five days to two weeks—
Feed No. 2 in light litter twice a day; No. 3 moistened with sour skimmed milk, fed three times a day; No. 3 (dry) always available.

Two to four weeks—
Same as No. 2, except that the moist mash is given twice a day.

Four to six weeks—
Reduce meals of moist mash to one a day; mixture No. 4 in litter twice a day; dry mash always available.

Six weeks to maturity—
No. 3 and No. 5 hopper-fed. One meal a day of moist mash if it is desired to hasten development.

ADDITIONAL DIRECTIONS

1. Provide fine grit, charcoal, shell, and bone from the start.
2. Give grass range or plenty of green food.
3. Have fresh, clean water always available.
4. Feed only sweet, wholesome foods.
5. Avoid damp and soiled litter.
6. Disinfect brooders and coops frequently.
7. Test all beef scraps before feeding.
8. Keep chickens active by allowing them to become hungry once daily.
9. Feed moist mash sparingly.
10. Keep dry mash always before the chicks.

Flock Makes Record

By H. Gerdes

IDON'T mean to say chickens are always sure profit winners, for there are many chances for loss, but I do contend that a few hundred hens of good laying stock, well cared for, will, one year with another, bring in a nice profit.

Here is my last year's poultry record. I began with 150 White Leghorn hens, old and young. From February 1st to November 1st I sold 1,350 dozen eggs, besides setting 500 eggs and using all needed for a family of five.

Eggs sold brought \$250, and chickens sold for poultry, \$50 more. From the chicks hatched I saved 240 pullets with which to renew my flock of layers.

Just a word about my hatching experience. I always use hens for this purpose. In 1914 I set 25 hens the last of March,

which hatched 350 chicks. Of these I raised 315 to maturity.

I use a small house in which to set the hens in nests on the ground. As the chicks hatched I gathered them in baskets to keep them comfortable until thirty-six hours old. They are then fed some grit and dry bread crumbs before turning them over to the hens. About 20 chicks are given to each hen after thoroughly disinfecting the hens with a good lice powder.

The main feed for the chicks after the first few days is baked corn bread with plenty of fresh tender grass and clover.

In 1915 I was not so successful, and raised only 225 chicks from a hatch of 300. The cold rainy weather chilled and killed more than when the season is favorable.

The Lure of the Egg

By Samuel Haigh

THE best thing I ever made use of for destroying rats is a poisoned egg.

Rats were making way with our chicks and eggs at an alarming rate. Ordinary poisoned bait and traps were useless. It occurred to me to take advantage of the rats' great liking for eggs. So I put as much powdered strychnine as would stick to a damp toothpick through a hole in the shell of several eggs and stirred the contents thoroughly.

For several days they took the eggs every time. Then they began to leave a few. In about ten or twelve days they had had enough, and although it is now nearly three years since I tried the egg remedy, only once since have I had to put out poisoned eggs.

Rats are so fond of eggs they won't refuse to take them poisoned no matter how much the egg has been handled.

I believe they could be exterminated with this remedy if the city and country people would take concerted action.

I advised a lady whose pure-bred chicks were being taken by rats to try the poisoned-egg remedy. She informed me shortly afterwards that the rats had disappeared after eating several dozen of poisoned eggs. She said her place previously swarmed with rats.

Double-Deck Housing

By P. F. Woodworth

ONE always hesitates before increasing his flock from a family-supply size to one of commercial proportions.

I started out to demonstrate that it was not necessary to spend so much as a dollar per bird for the housing of laying hens. Here is the way I tried to solve this problem:

My plan was to build a double-deck house, 24 feet long, 15 feet wide, 10 feet high in front, 8½ feet in back. The floor



This house cost \$78.72

is 3½ feet from the ground. This makes a total floor space of 720 square feet. Allowing the regulation floor space of four square feet per hen, this house will accommodate 177 hens.

Architectural beauty was not considered when the plans for this house were drawn, so the overhang to the roof was entirely omitted, thus allowing the entire structure to be tightly encased with two-ply roofing paper. It is divided into three pens. The partitions are of wire, with the exception of two feet at the bottom, where cheap boards are used; 2x2-inch stock is used for the frame, excepting the sills, which are 2x4's laid on posts seven feet apart, and set deep enough into the ground to prevent heaving by the frost.

Small yards are built in the rear, and are divided to accommodate each pen. Entrance to the yards is gained through small openings leading from the floor proper, and fitted with a sliding door. A board six inches wide, covered with small cleats, leads to the ground. Entrance to the yards should never be made to lead from the ground floor, as one of the chief values of this house lies in keeping the basement absolutely free from drafts.

Here in Massachusetts, where the cost of lumber is high, the entire cost of this house was \$78.72.

Mrs. ELIZA B. WHEELER, a New York poultrywoman, contends that a red tail-flag is the easiest and most effective remedy for broodiness for her Orpingtons. The hen's curiosity in the red cloth flying from her tail overshadows all interest in sitting.

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Dairying

Profits \$64.10 per Cow

By H. R. Leonard

EIGHTY-FOUR dollars and twenty-one cents was the profit made in one year by a Holstein cow belonging to Mr. H. A. Rhodes of Jackson County, Minnesota. She produced 11,133 pounds of milk testing 3.7 per cent butterfat. The butterfat sold for \$125.78, and the feed cost \$41.57.

The average net profit of the Rhodes herd of ten cows was \$64.10, which was \$12.60 more per cow than the next best herd in the County Cow-Testing Association.



Here is the cow that made a profit of \$84.21 in a year, and her owner Mr. H. A. Rhodes

tion. Of the first five herds in the association four were Holsteins and one was a Brown Swiss.

Ten years ago Mr. Rhodes decided to raise registered live stock. He started with Holsteins, but his neighbors laughed and told him that "those skim-milk cows" would soon ruin him. After two years he became discouraged and decided that he was not cut out for dairying.

So he secured an Angus sire and tried beef cattle. The result was fairly satisfactory, but his neighbors gradually got into dairying, and one of them persuaded him to enter into an agreement whereby he secured a Guernsey sire.

Seven years ago Mr. Rhodes decided to start a herd of registered Holsteins. After reading all he could about the breed he bought two cows at \$150 each, and a sire at \$100. Since that time he has never purchased any females, except in 1913, when he secured two heifer calves at \$60 each. To-day he has one of the best herds in the county, and has become a leader along dairy lines. He now has ten excellent cows, two yearlings, and eight heifer calves.

Mr. Rhodes has not only been able to establish his own herd, but has helped to raise his community to one of the best dairy sections in Minnesota. During these years he has been furnishing bull calves to his neighbors, and many others have adopted the breed.

Bran for Young Calves

By A. H. de Graff

FOR a number of years I did not raise any calves because of the impossibility of obtaining skim milk at the time it was needed. I then tried some of the commercial calf meal, and although I found one that gave fairly satisfactory results, it had to be scalded, entailing considerable bother. I then experimented some with various feeds, and found that a mixture of two parts of "red dog," two parts of ground oats with the hulls sifted out, and one part of oil meal gave very good results. I used this mixture for several years, but have since learned a better method, which is as follows:

The calf is allowed to suck its mother just once. This is to allow it to have the colostrum, or first milk, which is necessary to its health. It is then taught to drink from a pail, using whole milk the first time or two. Often the calf will not drink from a pail the first time, in which case I let it go until the next milking. After one or two feedings from the pail I give one and one-half quarts of fresh milk, and an equal amount of cold water just as it comes from the tank in the barn. After about a week I put hay and bran where the calves can get it.

After feeding the calves their milk and water I put a little of the bran in their mouths, and by the time they are two or three weeks old they will eat quite a little of it, and also of the hay. The calf continues to get one and one-half quarts of milk twice a day until about two

months old, when it is gradually taken away. The amount of water is increased a little, so that at the time that the milk is taken away the calf receives about four quarts of water twice a day. I give the calves all the hay and grain they will eat.

I have tried different kinds of grain, and have had good results with clear bran, and bran with various other grains. At present I feed bran in the morning and evening, and ground peas, oats, and barley during the day, with occasionally a little oil meal. I have had calves eat nine quarts of bran a day, at six months old or less, besides large quantities of hay. Calves fed in this way will also eat silage.

When raised by this method they grow rapidly, and never seem to be troubled by sickness. Skim-milk calves are a little fatter than these, but do not grow any more rapidly and, unless great care is taken, are subject to indigestion. When the time comes to put the skim-milk calves onto ordinary feed, the others shoot ahead, as they continue to grow, while those fed the skim-milk receive a setback.

Two precautions should be observed in this as well as in all other methods of raising calves. Strict cleanliness of utensils is essential, and the amount of milk fed should not vary from day to day. It is a good rule always to measure or weigh the milk and water.

Gored, Warns Others

By J. B. Otrey

WHEN I was a lad about twelve years old I was nearly gored to death by a mad bull. We had raised him from a calf, and he had always been gentle, allowing us to drive or ride him anywhere. On this particular day my chum and I and our dog started to go into the pasture.

When about halfway across the pasture the bull noticed us and came toward us, head down and bellowing. But we thought he was only playing, and not until he was almost on us and we saw the red in his eye were we alarmed. Then it was too late. We turned to run, but he tossed me on his horns and trampled me underfoot. One horn went all the way through my right leg, and my right side was torn open, allowing my intestines to drag on the ground.

My chum started to desert me, but when he saw he was not pursued he ventured back far enough to encourage the dog which never left me through it all. Had it not been for the dog he would have killed me. But the dog worried him and clung to his nose until help came. A carpenter working on our house saw it happen, and a man from town, eight miles distant, happened along with a very fast horse. After taking me to the house he went to town for the doctor and brought him back. The doctor said I could not live, as it was hot August weather. But he sewed me up, putting 22 stitches in my side, and with the aid of ice packs I finally got well.

To Get Roan Calves

ROAN cattle were first secured by crossing red and white cattle. This always gives a roan if the parent stock are from a pure red and a pure white strain.

But roan crossed with roan will give roan only 50 per cent of the time. The other half of the calves will be either red or white in about equal proportions.

Caked Udder Needs Care

THE principal causes of caked udder are irregular milking and lying on cold, wet floors. First one quarter becomes large, hardened, and inflamed, and in very serious cases all four quarters may be affected.

In bad cases call at once the best veterinarian to be had. A good home treatment for a mild case is this: Reduce the grain ration one half, and give all other milk-producing feeds sparingly.



Appearance of cow with caked udder

Massage the udder gently. Then rub it with a mixture of one part camphorated oil and eight parts of alcohol. Give a physic, and keep the cow in a well-bedded, comfortable stall, away from drafts, and milk her three times a day till the trouble disappears.

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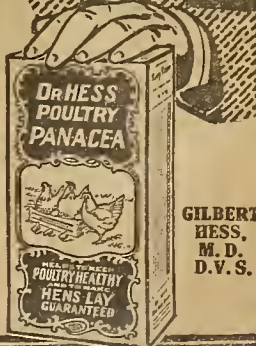
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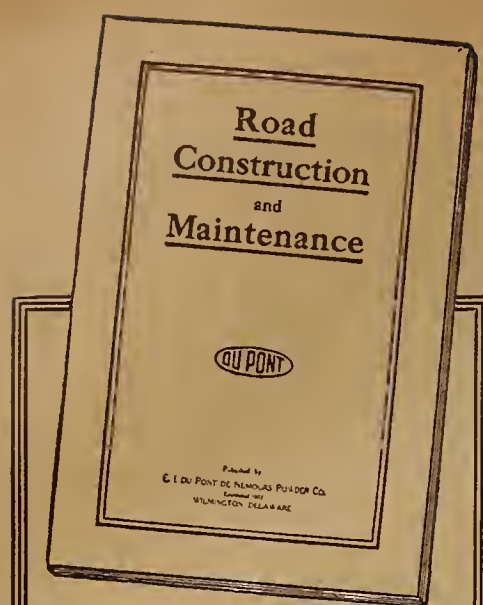
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Good-Health Talks

Suggested by Questions from Our Readers

By DAVID E. SPAHR, M. D.

WHAT the best diet is when one has rheumatism is a question that has been asked of me many times. A lady in Oklahoma writes in now, stating that she has been suffering for several months with acute muscular rheumatism. She is getting better, but desires a diet list that will prevent attacks from now on. What I said to her will be of value to many others.

First and important, clean up, clean out, and keep clean. Avoid dampness, drafts, overwork, and infections of every kind. The following is a list of things you can eat and the things you ought to let alone:

MAY TAKE

Soups: Small quantity only, of mutton broth, chicken or beef tea.

Fish: Raw clams or oysters, fresh fish (winter kinds), boiled.

Meats: Chicken, calf's head, sweetbread, tripe, broiled fat bacon or boiled ham (all sparingly).

Farinaceous: Whole wheat, corn or brown bread, arrowroot, rice, dry toast, milk toast.

Vegetables: Spinach, green peas or cabbage (well boiled), celery, lettuce, cresses, radishes.

Desserts: Milk, rice or arrowroot pudding (all without any sugar), junket.

Drinks: Tea (without sugar), buttermilk, pure water, plain, without lemon or lime juice (no sugar).

MUST NOT TAKE

Pork, veal, turkey, goose, duck, fried fish or meats, cooked oysters or clams, salted, dried, potted, or preserved fish or meats (except fat bacon or ham), crabs, salmon, lobster, eggs, rich made dishes, gravies, potatoes, tomatoes, beans, asparagus, mushrooms, candies, rich puddings, pies, pastry, nuts, cheese, coffee, cider, malt liquors, wines.

Cold in the Head

I am a country girl, nineteen years old; am well during the summer, but every winter I get a cold in my head. How can I prevent colds, and how can I cure it when I get one? H. A., Illinois.

ALTHOUGH you live in the country, I am afraid that you do not get enough fresh air. Get out of doors, sleep with open windows, but not in a draft. Don't muffle your neck up. Bathe your neck and chest with cold water, and keep your system in a good condition.

Chokes When Talking

I am a young preacher, and when I first begin to preach it seems as if my mouth and throat get so dry as to choke and strangle me. After speaking daily for a while it gets all right. Is there any sort of a tablet I could use that would help me? M. F. J., Oregon.

SUCH throat trouble is usually due to slight embarrassment or stage fright. To moisten the throat, chew a little willow or calamus root. I think you will overcome the difficulty in a short time.

Wants to Increase Weight

I want to know if there is any way by which anyone can increase his weight by any ordinary method, such as taking Sargol or any medicine that aids digestion. Will massaging the face with a good cream help to fill out the sunken cheeks? I am very thin, and weigh about twenty pounds less than I ought to, but I am well and healthy. A. M. K., Tennessee.

YOU can increase your weight by drinking plenty of good sweet milk, say a glassful every three hours during the day. I know nothing about Sargol, the medicine of which you speak.

Yes, I am sure that proper massaging of the face with a good cream would smooth out the face quite a good deal.

Will Water Cure Headache?

How much good spring water should the average person drink each day? I drink but little, often not taking a drink all day except just what I drink at the table. I am subject to spells of sick headache occasionally. Would drinking more water prevent those spells? D. M. L., West Virginia.

THE average person drinks entirely too little water. I should think that from three to five pints should be con-



sumed each day. The diluting and washing out of irritating products added to the soothing effect of the water is very beneficial. The consumption of large quantities of water produces a greater effect upon women and children than upon men. Drinking cold water increases the peristaltic action of the bowels, as is evidenced by the expulsion of gas. If it is necessary for us to wash the face, body, and feet daily, why should we neglect the stomach and bowels and kidneys?

I am not positive that it would prevent your sick headaches, but it certainly would make you healthier.

Indigestion

I have indigestion that has gradually been growing worse for the last three years. Have a painful, burning sensation about two or three hours after meals. Everything sours on my stomach, with abundance of gas. I am in a quandary to know why I don't get well, as I am only twenty-five years old and have the appearance of health. I do clerical work. R. L. D., Pennsylvania.

YOU should take a tablespoonful of effervescent phosphate of soda in a glass of water before breakfast, and a tablet of Bland's compound modified (Upjohns). One after each meal. Clerical work will not be quite as good for you as out-of-door work. Eat enough of wholesome food to keep up your strength, varying the food to suit your taste and capacity to care for it.

Chromium Sulphate

Is chromium sulphate injurious to the nerves or arteries? Is it of any benefit in locomotor ataxia? R. F. F., Michigan.

IHAVE heard it recommended, but have no actual experience with it. I do not think it would injure the nerves or arteries in the proper dose.

Baby Sore Behind Ears

My baby, one and one-half years old, has had a soreness in the back of her ears ever since she was two weeks old. I have taken her to different physicians, and have used all sorts of salves, and even the X-Ray treatment, but to no good. What would you advise? Mrs. C. C. C., Minnesota.

SUCH cases of intertrigo usually yield to cleanliness and the free use of absorbent antiseptic powders, such as boric acid and starch, equal parts. Or the following ointment may be applied on a cloth:

Oxidi zinci, 2 drams; acidi salicylici, 10 grains; amyli, 2 drams; vaseline, 1 ounce. Mix, and apply on a soft cloth two or three times daily.

Constipation in Children

I have a little daughter, not quite two years of age, who is obstinately constipated. I have tried everything. What can I do? R. I. B., Pennsylvania.

GET a four-ounce bottle of syrup Tamarind's compound (Wyeth), and give one or two teaspoonfuls as required. This is a purely vegetable preparation to regulate the bowels and correct indigestion.

Relief from Catarrh

I live in the northern part of Ohio, seven miles from Lake Erie, and the people here are subject to catarrh and bronchitis. I had been a sufferer for eighteen years with catarrh, terminating with bronchial asthma every winter. A year ago I began taking cold baths, bathing my head and body down to the waistline. After ten days the asthma and bronchitis left me, and I have not had either since. Had but very little hay fever in the fall, and my catarrh is much better. Others also, by my recommendation, have been greatly helped. I am not telling you how to doctor, but I want people to know of this wonderful relief. J. A. H., Ohio.

THIS is correct orthodox treatment, and should be given a thorough try-out by anyone afflicted that way. However, chronic invalids should begin the treatment cautiously. Begin with tepid water and a good rub, and gradually lead up to cold water.

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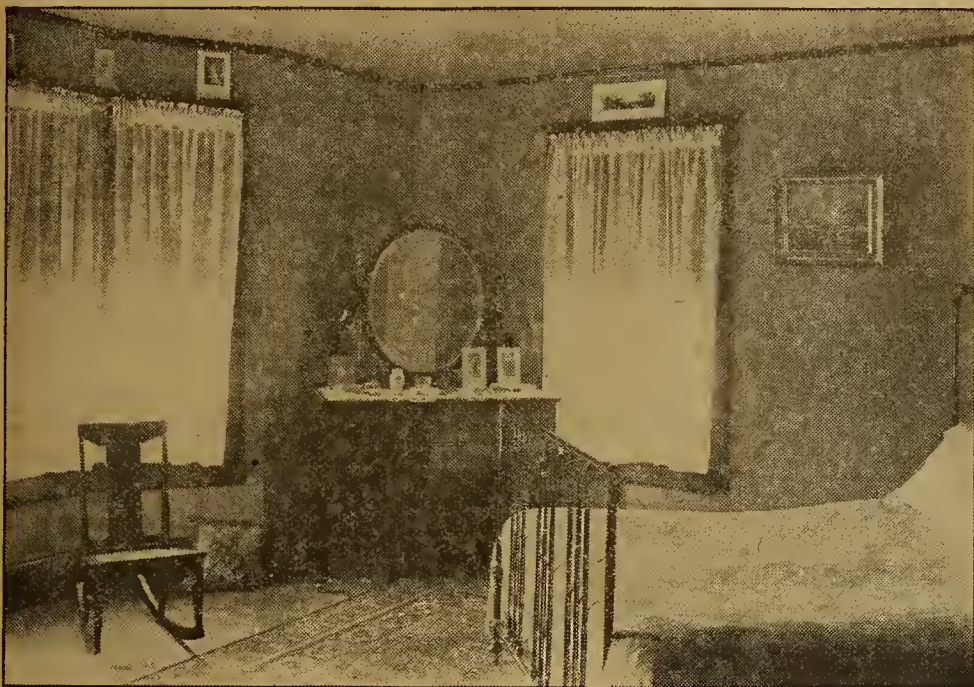
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The Neat Home

House-Cleaning Time Does Not Carry with it the Drudgery of Former Days



Old floors are made new in appearance and are easy to keep clean after crack filler, paint, and varnish are used on them

Cleaning House

By Mary Edith Updegraff

I HAVE just finished my spring house-cleaning. It was not such a "Reign of Terror" as most persons believe it to be. I was "systematic, rapid, and thorough," as Aunt Mary always preached.

The first thing I did was to clean out my attic, or storeroom. I went through every trunk and gave away all the old clothes that were not useful. I cleaned my attic while the good clothes were on the line being aired, then after my attic was cleaned thoroughly and straightened up I replaced the clothes in the trunks and put everything in place.

Next I cleaned every closet on the second floor, took everything out, went over all the clothes, put them out doors to air, and brushed them all carefully. I then scrubbed the closet floors and walls well, going into every corner, for Mother always said, "Moths and other household enemies live in the corners."

While the clothes were on the line, I cleaned my dresser drawers and bookcase up-stairs, threw away all unusable odds and ends, for these are the very things that collect the dust and dirt. I cleaned the dressers completely, changing the papers, and so forth, and then I put back the contents.

After that I took the curtains and draperies and all pictures and wall decorations down. When the pictures were thoroughly cleaned I put them on a large table in one of the other rooms, covering them up with a sheet. Next I went over the walls and ceiling with a dry cloth, cleaned the woodwork, baseboards, and moldings. Then I made the windows shine by using a little ammonia in the water. This I also found to be good in cleaning my glassware.

After this the light pieces of furniture were removed, windows raised, and the heavy articles of furniture were dusted and gone over thoroughly, then covered with cloths until I had finished my cleaning. I took up the floor coverings, such as the rugs and carpets, and placed them on the grass in the back yard, and Jack came in early from the field and beat the rugs for me.

I found it was so hard to take up the lovely rugs Aunt Mary gave me every time I cleaned that I turned under the edges of one carpet, and the other was so heavy I took off a width on either side and finished the ends with fringe. I put a filler between the cracks in the floors, then painted and varnished them.

After everything was spick and span I brought in the clean rugs and carpets, furniture and draperies, and placed everything back in place. I had left my windows lowered from the top, for Jack does dislike the odors of cleaning preparations. Then I shut all the doors and cleaned my stairs and hall in the same order as I cleaned my bedrooms.

The next day I started on the downstairs, beginning with the closets in each part of the house first, and removed everything. I took out the dishes from the china closet, cleaning it well, washing and shining the dishes and glassware, then I put them on the dining-room table, covering them as in the case of the pictures.

I went through exactly the same process with everything down-stairs as I did up-stairs. When this was all

done I closed the doors, having left the windows open from the top.

Next morning I cleaned my pantry and kitchen thoroughly. First I scrubbed and polished the stove, then cleaned the ceilings, walls, woodwork, windows, floors, and went over all the furniture, scrubbing it well. After this I cleaned and straightened up the porch. On the same day I even cleaned my cellar, but Jack helped me do that, and working together we soon had it done. We took everything out and did away with all of the rubbish. I cleaned the fruit jars and packed them on the shelf. Then we cleaned the cooling-room, scoured the shelves, and aired the whole place well.

The next day I fumigated the entire house with a formaldehyde preparation I bought at the drug store.

Later I took Jack for a "round trip" over the house and asked him if it wasn't lovely to have a clean house from top to bottom.

The Kitchen Clean

By Lucile Mills

A LITTLE paint and a little varnish, with a little labor, will turn a kitchen into a new and pleasant workshop. When the house receives the annual spring cleaning is the time to make this change. The general cleaning of the house is somewhat temporary, but the refinishing of the kitchen may be done so that it will last for several years.

If the floors are of soft wood, and it does not seem advisable to replace them with hard-wood floors, they should be made as sanitary as possible with some covering. Satisfactory materials to use are: a floor oilcloth, a printed or an inlaid linoleum. The floor oilcloth costs from 40 cents and up a yard. It is 36 inches wide. Printed linoleum costs from 85 cents and up a yard. It is six feet wide. Inlaid linoleum, which is the most durable of any of the kitchen-floor coverings, costs from \$1.65 cents and up a yard. It is six feet wide usually, although you can get it up to 12 feet wide. While the initial cost of these materials seems large, the durability and the ease with which they may be cleaned will easily compensate for it.

Great care must be taken in the laying of floor oilcloth or linoleum to prevent billowing and cracking. If the floor is perfectly level and the floor oilcloth or linoleum is stretched, there will be no danger of this. A piece of molding is often put between the edge of the floor covering and the baseboard to prevent moisture from collecting there. This is an inexpensive and efficient method.

Another very satisfactory way of refinishing wood floors is to clean them thoroughly, fill the cracks with a filler, and give the floor two coats of paint and one coat of varnish. Brown or tan paint should be used to prevent grease spots from showing, since practically all stains in the kitchen are brown or tan. Such a floor is easily cleaned each day with an oil mop, each week with a floor mop, and each year with a new coat of varnish. A painted floor without the varnish is easily cleaned, but it will require frequent retouching.

The kitchen is no place for wall papers. To be sure, a smooth-finished wall is the most desirable, but this must be secured by some other means than by the use of paper. The steam in a kitchen

soon loosens the paper, making the room both unattractive and insanitary. Instead of renewing the old paper, scrape it off and scour the walls. If the walls have rough finish they may be tinted, and this may be renewed each year.

If the walls are a smooth finish and the plaster is of a good quality, they may be painted and enameled. If possible, use a tan tint or paint. Oilcloth papers are always satisfactory. If these are used, a lighter color may be selected, for on such papers spots are easily removed.

The entire room will be brightened by fresh lawn curtains at the windows and clean oilcloth on the shelves and tables. Fresh paint and varnish for the woodwork and a general cleaning of the fixtures in the room will complete the transformation of the kitchen.

Cleaning Materials

By Lucile O. Norwood

SOAP is by no means the only cleansing substance, although it probably is the most effective. We need different cleaning agents for different purposes.

Iron and wood may be very thoroughly cleaned if scoured with white sand.

Steel knives may be nicely polished if they are scoured with a piece of Bath brick. This is made from earth containing a little lime. However, ordinary brick dust is just as efficient, but will probably take a little more scouring.

Rotten stone is a splendid cleaner for any utensils made of brass, copper, or tin.

Silver may be cleaned in many different ways. One very effective method is by applying a thin coating of moistened whiting. When this becomes dry, remove it by polishing the silver with a soft cloth or brush. Another very good way is to put the tarnished silver into an aluminum pan and cover it with a solution of soda in water. Any ordinary pan may be used if a strip of zinc is placed in the bottom of the pan with the silverware. Always thoroughly wash the silverware in hot water before the final polish.

Sal-soda is a powerful alkaline cleansing agent, and must be used with great care, as it has a powerful reaction upon the skin. This alkali, which is the basis of most washing powders and compounds, can be made at home much cheaper than it can be bought. Dissolve one pound of soda in one quart of water, in a can, over the fire. When it is cool put it in a bottle and mark it "Sal-soda Solution." Pour in a little when needed. Ammonia is a good substitute for sal-soda, especially in laundry work.

Kerosene is very useful for cleaning polished woods which would be injured by alkalis. It is an excellent disinfectant.

Tarnish may be removed from many articles by this simple method: Wash thoroughly the articles which are to be cleaned. Mix common salt and vinegar in a saucer. Dip a soft cloth in this solution and rub the surface until all tarnish is removed. Wash the article in plenty of water, and then wipe perfectly dry.

When the Green Gits Back

By James Whitcomb Riley

IN SPRING, when the green gits back in the trees,
And the sun comes out and stays,
And yer boots pulls on with a good tight squeeze,
And you think of yer barefoot days;
When you ort to work and you want to not,
And you aud yer wife agrees
It's time to spade up the garden lot,
When the green gits back in the trees—
Well, work is the least o' my idee
When the green, you know, gits back in the trees!

When the green gits back in the trees,
and bees
Is a-buzzin' aroun' ag'in
In that kind of a lazy go-as-you-please
Old gait they bum roun' in;
When the groun's all bald where the hay-rick stood,
And the crick's riz, and the breeze
Coaxes the bloom in the old dogwood,
And the green gits back in the trees—
I like, as I say, in sich scenes as these,
The time wheu the green gits back in the trees!

When the whole tail feathers o' winter-time
Is all pulled out and gone,
And the sap it thaws and begins to climb,
And the swet it starts out on
A feller's forred, a-gittin' down
At the old spring on his knees—
I kind o' like jest a-loaferin' roun'
When the green gits back in the trees,
Jest a-potterin' roun' as I—durn—please—
When the green, you know, gits back in the trees!

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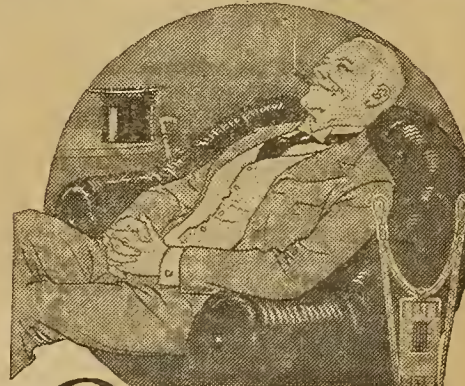
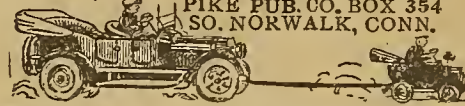
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The Lover's Return

Unusual Adventures with Young Hearts and Sitting Hens

By W. D. NEALE

"WHAT'S become of Rinda Martin?" Ralph Morrison asked of his mother. He had seated himself in a soft-cushioned chair near the bed on which his mother lay rapidly recovering from a spell of sickness. It was her illness that had brought him home from Colorado where he had been mining the past three years. He had been very successful, and his mother looked upon him admiringly. Ralph's skin was much browner, he had grown a mustache, and there were a few wrinkles across his forehead, yet as he sat there, his big brown eyes beaming with intelligence, his mother thought him really handsome and the very image of his father.

"How about Rinda, Mother?" he again questioned. "I haven't seen her since I came home. She hasn't been here or even called over the telephone to ask about you. She isn't married, I hope?"

"No," began Mrs. Morrison, "she isn't married, but I haven't seen Rinda for nearly a year. She frequently came over before you quit writing to her. She let me read every one of your letters, but when you ceased to write she stopped coming. She don't think you were fair with her, Ralph, and I don't think you did treat Rinda quite right. She's a nice girl and good enough for any boy's sweetheart."

"Well, she began keeping company with Ned Maupin," explained Ralph, "and you know I never did like him, so I wrote and asked her not to go with him any more. She sent me a pertinent little letter in reply, and I never answered it. Not a word have I had from her since that day."

"Ned waited on her a while," asserted the mother, "but he married Jewel Noble. Rinda wouldn't think of marrying a fellow like Ned. She would live single always. I think she stays at home most of the time now. She's the only dependence of her father. He's getting old, over seventy-five, and she cares for him devotedly. The neighbors say that she is as neat as a pin about the home and seems to be perfectly contented with the house and her flock of White Wyandotte chickens. That reminds me; Mandy, the girl, says my Wyandottes are wanting to set. The nests need fixing and the house ought to be cleaned. Would you mind looking after them for me, Ralph? You can soon put things in shape about the poultry house, and it won't take long to make new nests and put the eggs under the hens."

"I'll try, Mother," was the reply, "though you know I'm not much of a poultryman. I've been handling gold and silver the past three years instead of setting hens. I expect I'll make a botch of the business."

"I forgot to tell you that Billy Porter had been to see Rinda a few times lately," resumed the mother. "You know he's the bachelor living over by the church."

"Yes, Six-foot Billy we called him," laughed Ralph. "It's something new for him to be paying attention to the girls, isn't it?"

"Never went with one that I ever heard about," replied the mother, "until he went with Rinda to meeting one night. Since the ice is broken he keeps going. That's what Mrs. Williams told me the day before you came home."

Ralph stood for a moment and pulled his brown mustache.

"Rinda is a pretty girl," he finally asserted. "At least she was before I went away. She's the same age that I am, but she always seemed ten years younger. I don't blame Billy Porter for falling in love with her if she's like she used to be."

"She's still pretty and young-looking, so the neighbors say," informed the mother, "and if she was ten years older than you, Ralph, I'd still want you to love her."

Ralph bit his lip, twisted his mustache more vigorously, and slipped out of the room without replying to his mother's words. He went to the poultry house that was standing back under the shade of the apple trees, and took up the rake to clean it. He worked manfully and got along very well until it came to managing the setting hens. He started to take one from her nest, and she pecked his hand viciously, causing a dark bloody place. He tried to remove another, and she flew into his face and flopped him in good fashion. He walked out of the range of her fury and out of the house. He picked up the rake and set it against the picket fence.

"Mandy," he called to the servant girl who was at the well for a bucket of water, "look after Mother for a while. I'm going over to one of the neighbors."

She nodded assent, and Ralph turned his steps through the orchard. He crossed the big meadow and found an opening in the hedge where he went through to the road across which stood the home of Rinda Martin. It was an old-fashioned cottage, nestling among the tall maple trees that were just beginning to put forth their leaves. Rinda's father had built the cottage and set out the trees with his own hands. The old gentleman loved to sit out on his front porch and study about the things of nature and live over the past years of his life. He was seated here when Ralph came up.

"Good evening, Mr. Martin," greeted Ralph.

The old man stood up, strained his eyes for an instant, then exclaimed:



At once she arose and stood before him.
"Ralph Morrison, is this you?"

"Why, it's Ralph Morrison, I do declare!" They shook hands. "Glad to see you, Ralph, and to know you've gotten home to be with your mother. She keeps improving I suppose. Here, sit down in this chair."

Ralph dropped into the chair and chatted with Mr. Martin for a while. Mr. Martin asked about the West in general and Colorado in particular. During the war he had crossed the plains, had passed through Colorado, and had been to the very place where Ralph had found gold and established his mining camp.

"Where's Rinda?" asked Ralph after the conversation had lagged a bit.

"She's out among her chickens," answered Mr. Martin. "If you want to see her, go around the house to the poultry yard and you'll find her."

Ralph at once proceeded to the poultry yard. He heard a voice in the hen house and slipped quietly to the door. Rinda had her back to him and was kneeling over a nest of baby chicks from which she had lifted the mother hen.

"Oh, you downy little balls!" she was saying.

"Rinda, let me hold the hen," smiled Ralph as he stepped forward.

She turned quickly to the intruder. At once she arose and stood before him.

"Ralph Morrison, is this you?" she exclaimed in excitement. "I didn't recognize you at first for that mustache, and you're so tanned."

Ralph twisted his mustache and continued smiling. "I found my mustache and my complexion in Colorado," he explained.

Then Rinda stood in silence for a moment as if she had suddenly remembered something. Ralph believed her more beautiful than ever. Her brown hair seemed more wavy, her dark eyes brighter, and her round face sweeter.

"Father's on the front porch," she finally began, "and I'm sure he'll want to see you."

"I've been talking to him," Ralph replied, "and I wanted to see you, so he sent me out here."

"Is your mother worse?" questioned Rinda in seeming surprise.

"No, no," was the quick answer. "She's coming along nicely. I think she'll be able to sit up in a few days. It isn't Mother; it's her hens. I believe every one of them wants to set, and I can't do a thing with the pecking, flopping creatures. I want you to come down home with me and help me set 'em. Mother says you are fine with poultry."

By this time they had got to the back-yard gate. Ralph opened it and waited for Rinda to go through. She stopped in the gate and turned to him.

"I can't go," she said. "I'm very sorry, Ralph; but I can't."

"But you must," he demanded boldly. "I know you will for a sick woman like Mother. She'll worry until the hens are set, and you might as well go now and help me. Do it for Mother's sake, not because I have asked you."

"I can tell you how to set them," she informed him. "and you can go right home and put the eggs under the hens in an hour."

"I'm no friend to a setting hen," laughed Ralph, "and from the looks of my hand the setting hen is no friend to me." He showed Rinda his hand that was still marked with blood, the effects of the hen's sharp bill.

"Poor boy," she sympathized. "You should not put out your hand for a setting hen to peck, for she's most certain to accommodate you every time."

"Please don't make fun of me," begged Ralph. "Rinda, you know I haven't bothered around chickens for three years. I know something about mining, but I'm ignorant of the ways of a setting hen. So I want

you to come along with me. You understand how to manage the fussy biddies; I don't."

"But Mr. Porter is coming to take me to a party to-night," answered Rinda, blushing, "and I've so much to do, it will be impossible for me to go. I have to do the chores, as Father is not able. Besides, there's the supper to get and the dishes to clear away. I'll come to-morrow morning. The morning's the best time to set hens anyway. Tell your mother I'll come at ten o'clock."

"Seems like if one person could set the hens in an hour," argued Ralph, "two persons could set them in half that time. It would take five minutes to go and five minutes to come. I'll do the chores for you so you won't keep Billy Porter waiting. Now, will you go, Rinda? Mother's expecting the hens to be set this very evening, and I'll admit they've bluffed me out."

"Wait until I get my hat," she answered, "and I'll go."

In a few minutes they had found the path across the meadow and were walking briskly side by side. The soft breeze ruffled the locks of hair that fell about Rinda's temples, and her face glowed while her dark eyes danced with the expression of her exuberant spirit. Ralph thought she really appeared more vivacious than ever before, and he looked down at her with a feeling of greater admiration.

"Rinda," he complimented, "you're as young-looking and as pretty as before I went away."

"I guess you'd say it whether you believed it or not," she smiled, "since you've had your way 'bout my setting your hens."

At that he frowned and replied:

"I'd have said it and told the truth if you had refused to come."

"Folks keep their looks better in Missouri than in Colorado, I reckon," she teased, glancing at him. "Guess the sun's hotter and the wind's worse out there. I suppose it's a good place for a man to grow a mustache, but there's something in the climate or the life you've been living that makes you look—"

"Older," he took it out of her mouth. "I'm glad I do."

In a few minutes they came through the gate into the orchard, and she followed Ralph to the poultry house. Having stepped inside, he pointed to the row of nests filled with broody hens.

"There they are," he said, "a dozen of them. The one on the first nest put this black place on my hand; the one on the second introduced me to her wings to my satisfaction. Maybe you can manage the fussy sisters; I can't."

"Aren't they beauties?" bragged Rinda. "I do enjoy looking at the pure-white Wyandottes. I also love to be about them and help them in any way I can. Bring some nice clean straw, Ralph."

He went around the corner of the house and soon returned with his arms filled with bright straw, which he deposited at Rinda's feet. She quietly slipped her hand under the first hen and lifted her gently from the nest. A cluck or two was the only protest.

"They like women," Ralph remarked. "Mother's always tended them."

"It's mostly in knowing how to deal with them," Rinda replied. "A quiet and gentle hand will not meet with much antagonism from the broody biddies."

Rinda deftly removed the old straw from the nest and filled it with the new, and the clucking hen was soon satisfied in her nest again. One after another the hens were removed and new nests made.

"You're certainly a hen charmer and nest maker," Ralph declared when she announced that she was ready for the eggs.

"It's a science, same as mining," Rinda asserted. "You have to read all about it, then practice doing it a long while before you understand it very well. I'm not perfect, but I do think I know a few things about setting hens."

"I'd be willing to graduate you and give you a diploma on the business," congratulated Ralph.

Immediately he went into the house and brought out a large basket of brown eggs. Together they marked them with pencils Ralph happened to have in his pocket. Rinda again lifted the hens one by one from their nests, filling each nest with eggs from the basket which Ralph held in his hand.

"I used to think no one could beat Mother making nests and handling setting hens," declared Ralph, "but I believe you can do it better."

"Thank you," smiled Rinda as she faced Ralph, who now stood in the door.

Ralph reached out and caught both of Rinda's white hands in his.

"We haven't said a thing about old times," said Ralph. "Rinda, I didn't do right by not answering your last letter. I never liked Ned Maupin, and I thought you cared for him."

"And I shouldn't have written you such a sharp letter," she sighed, "I've been sorry a hundred times that I did."

"And if it wasn't for Billy Porter I'd ask you for your love again," emphasized Ralph.

"Oh, he's just a good friend, that's all," laughed Rinda.

Then Ralph took her in his arms.

Improving Schools

Business Methods Increase Efficiency

By MANTHEI HOWE

A CHILD cannot make the progress it should make in its studies and its health is endangered if the school building is heated poorly, has insufficient ventilation, and is not cleaned properly. Many times as a result the child "takes cold," suffers a sore throat, or develops some disease.

I know of one case where a child had to be kept out of school because it was absolutely impossible to heat the school building to 66° F. during the cold weather. If that happened in a tenement we

should all be critical, but because it happened in the country we are apt to think that it is all right. That condition exists in many country schools. It might be wise for us to face the truth and take a squint at the rural school in our district.

A while ago I visited a school where the stove was braced up with a brick where a stove leg should have been. The water pail had a rusty bottom. Cobwebs hung from the corners of the room.

Little tads of six years of age sitting in seats designed for children five or six years older—do you consider it healthful for them to sit with legs swinging over the edge of that bench for two or three hours at a time every day of the school week? Physicians who know say that it is distinctly harmful.

Big boys and girls of fourteen and fifteen bent over nearly double trying to use seats that are too small; blackboards in the shadow of the room; half the room too dark for seat work—such are the conditions of many country schools, yet the work has to be done. The teacher cannot very well seat the children on the floor near the windows—not if it is as cold as one room I visited.

Some country schools have outhouses dirty, poorly built, and too close together, allowing no privacy and affording plenty of opportunity for all kinds of moral filth. It may be difficult to change such conditions in some congested districts of the larger cities. There is no excuse for the existence of this problem in the rural school. Can any of us afford to let our boys and girls grow up in such surroundings? If it is shrewd business acumen that moves the farmer to build sanitary coops, up-to-date pig pens, substantial barns and silos, then we can only wonder what ails the perspective of a few of these same farmers when they tolerate the ramshackle school.

Farmer Dependent on Neighbors

"Pull together" is a slogan that might well be adopted for the American farmer. It is a working motto for those interested in good schools and good roads. We who live in the rural communities are peculiarly dependent on our neighbors.

In the cities mothers and teachers are forming parent-teacher associations. The mothers and teachers are working together to solve the questions that are bothering both. They hold meetings in the schoolhouse once a month, once a week, or once in two months, as they may decide according to their convenience. In most cases a president, a vice-president, a secretary, and a treasurer are elected, since well-organized societies, as a rule, obtain more lasting results. Papers on juvenile reading, hygiene, child study, industrial work, and kindred subjects are read and discussed.

The mothers and teachers are acquiring the maximum of information on important subjects, and they are accomplishing it with the minimum of individual effort. This necessarily is the aim of the busy country woman. The school and the home are co-operating as they always should if we are to get the best results. Do you know of any reason why we should not have a parent-teacher association in every country school district?

Some parents, year in and year out, never put a foot inside of the schoolhouse in which their child spends such a large part of his early life. Make it



School dilapidated; farm buildings up-to-date. The author of this article maintains both should be in good condition

your business to know the teacher personally. Maybe then the mother or the father will see that sometimes it is necessary that Jack or Bill or Tom shall get a lesson instead of doing some chore that seems to call.

Not that I mean that all children on the farm are drudges; nor do I mean that they should be allowed to shirk work. There is nothing better for the growing boy or girl than a reasonable amount of work. But what the father may consider reasonable is not always so when considered

in relation to school work that should be done.

It sometimes happens that the mother and teacher may agree on the subject but father has to be shown. That is a pretty good thing on general principles. Let Father, the legal taxpayer, get in on the job. He pays the bills. See that he gets a practical demonstration of the difficulties of the school work.

C. C. Sherrod of Tennessee has evolved a scheme that strikes me as a very satisfactory way of getting Mother, Father, and the boys and girls all in the schoolhouse with "dear teacher" at one and the same time. He calls it a rally day—a day of special exercises, music, and general enthusiasm. Ask some big man of your district who actually has the "gift of gab" balanced by the gift of brains to address the meeting on some vitally important phase of the school work. Have papers read by persons that you know are able to bring a progressive message to you. Ask someone to read a short article from some current magazine on school work.

Schools to be Proud Of

Develop school spirit and enthusiasm. Then get to work and keep it up. Put something in your district that your district may be proud of.

Recently the Department of Public Instruction in Michigan sent a communication to all the school boards in rural districts urging them to co-operate with the state board in a movement for a standard rural school. In order to receive the metal tablet which is to adorn the outside of the building, and the framed diploma to be hung inside, the superintendent of public instruction requires the rural school to fulfill certain conditions before it can be classified as standard, and it forfeits the claim as soon as it falls below the specifications. Eliminating some of the less important, these are the requirements:

1. YARD AND OUTBUILDINGS—Grounds of at least one acre having some trees and shrubs; two well-kept, widely separated outhouses.

2. THE SCHOOLHOUSE—Well built, in good repair, painted; good foundation; well lighted with some attention to proper lighting; interior made attractive; good blackboards, some suitable for small children; heated with room heater and ventilator in corner, or basement furnace which brings clean air in through the furnace and removes foul air from the room; hardwood floor, and interior clean and tidy.

3. DESKS—Suitable for children of all ages, properly placed; good teacher's desk; good bookcase; collection of juvenile books suitable as aids to school work as well as for general reading; set of good maps, a globe, a dictionary; sanitary drinking facilities.

4. ORGANIZATION—School well organized as to grades; classification and daily register kept; definite program of recitation and study; attendance regular; at least eight months of school.

5. TEACHER—Training of a county normal or the equivalent of a four-year high-school course; salary of at least \$360 per annum; must attend institutes and teachers' meetings.

Those are the requirements Michigan is urging her rural school boards to comply with. How about your State? Are your schools up to this very reasonable standard? You are making a

mighty poor business investment if your schools are not as good as this, or better; for satisfactory work cannot be done with a cheaper equipment, and even this one will not be up to some of the better small-town schools, and is of course far behind the larger city school systems. I believe that the country boy and girl have naturally the best chance in the world for proper development along physical and educational lines if we put within their reach all the possibilities of the country.

Acquire a good schoolhouse for the district if you have to make a house-to-house canvass of the people in the district. If your board has not the knowledge or necessary information at its disposal, have your school commissioner write to the United States Bureau of Education for bulletins and suggestions.

Schools Affect Farm Life

What are the requirements of a good teacher? First of all she must know more than the actual book requirements. She must have personality, liking for the work, and a willingness to work. She must appreciate the possibilities of rural school work and its problems. She must be able to maintain discipline. Where you have so many ages and sizes as you do in the average rural school, discipline is an important item. Then remember that you cannot find the efficiency of a fifty-dollar teacher in a thirty-five-dollar-a-month individual—not unless you are lucky or she has not yet learned her real value—so have patience with thirty-five-dollar limitations and do your share.

Make the rural schoolhouse so far as possible a social center; get the people in the habit of going there. And every bit of beauty you can put into the rural school means that much of a tie that will bind the boy and girl closer to the farm.

New Puzzles

Juvenile Geography

Here is a clever composition by a little traveler which shows quite a knowledge of things and places:

I was awakened one morning by a city in China, which was perched upon a fence under my window. From a neighboring room I heard a division of Great Britain, and soon afterward I called one of the rivers in South America to make a fire, as the air was a division in South America. Going down to breakfast, I found that one of the lakes of North America had spilled a division of Europe upon the carpet, and put upon the table a division of Asia, seasoned with a city of South America; also a cape of Massachusetts; an island in Oceania; a city in France, stopped with a city in Ireland, and a basket containing a river in Africa, and a quantity of ammunition. I gave him a division of Africa to pay for my breakfast, and went to the kitchen to ask some of the islands of Oceania for some sugar to feed an island of Africa which was hanging in my window.

The Kitchen

A Rebus of the Household



This time the puzzle artist is taking us right back into the kitchen with the cook. Of course it is no hardship to be in the kitchen with such a pretty cook as the puzzle artist has drawn for us, especially when she is making apple pies the size of the one she holds.

Even if your cook is not a beauty, and if she does not make apple pies, is no good reason, you know, for not guessing the puzzle. "A kitchen's a kitchen for a' that," as Robert Burns did not remark. Look at the pictures, look about your kitchen, use your wits—and there you are!

Answers to Puzzles

Puzzles Printed Last Issue

Riding Against the Wind

That rider's actual time for one mile, if there were no wind, would be three minutes and twenty-six seconds.

Anagrammatic Apples

Forbidden fruit.



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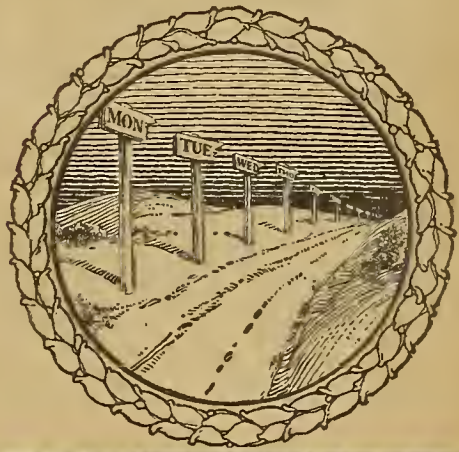
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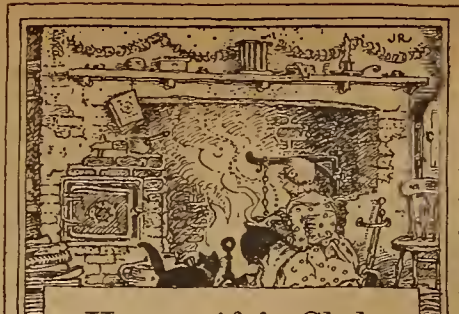
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Housewife's Club

Household Disinfectants

By Mary G. Perkins

RIGHT here we might well consider some household disinfectants. The one which is perhaps most generally used on wounds is peroxide of hydrogen. If fresh, it is very effective. There are two cautions to observe in its use: it will bleach colored fabrics, and it loses its strength if allowed to stand exposed to air and sunlight. Under any ordinary conditions it will decompose in a few months at the longest.

For a wound from a rusty nail nothing is better than turpentine. For disinfecting inanimate things, chloride of lime or quicklime are splendid. There are two things to bear in mind in their use: they will bleach colored fabrics, and they are not effective except in generous quantities. If you are whitewashing something to purify it, see that every part of the article is thoroughly wet.

Bichloride of mercury (corrosive sublimate) and carbolic acid are both powerful germicides, but also strong poisons. The former will corrode metal quickly, so solutions containing either of them should not be poured into a sink. With poisons such as these the safest plan, particularly if there are children in the household, is to substitute something else.

Sunshine and fresh air, with long applications, are cheap, easy, and good. Boiling water is the best and most generally used of all disinfectants. Because of it, we are able to keep canned goods from putrefying, and to kill the bacteria on our food which might otherwise enter our bodies to injure us. Of course, it cannot be used hot on a wound. However, a vessel of boiling water may be cooled to the proper temperature by setting it in a vessel of cold water. If it is used immediately upon cooling, there is slight danger of infection.

In her vigilant fight for cleanliness and health the housewife has for her chief allies these things—heat, cold, fresh air, and sunshine. With the sensible application of these of Nature's free gifts she need fear no bacteria.

Recipes

Roller Jelly Cake—Place in mixing bowl one cupful of granulated sugar. Into this break three eggs and beat them together until foamy. Add one-half cupful of cold water and one cupful and one tablespoonful of well-sifted flour, one teaspoonful of vanilla, and two heaping teaspoonfuls baking powder; beat all well. All the ingredients are to be measured in same size cup. This will make a thin batter, but do not add more flour. Have oven hot. Grease baking pan (size about 10x16 inches), and let it get hot, then pour in your batter and bake quickly. When done, spread immediately with jelly and roll.

Mrs. F. F. W., Ohio.

Spanish Cream—One envelope of granulated gelatin, three eggs, one tablespoonful of vanilla, one quart of milk, eight tablespoonfuls of sugar. Soak gelatin in milk. Put on fire and stir until dissolved. Add yolks of eggs and four tablespoonfuls of sugar well beaten.

Stir until it comes to the boiling point. Remove from stove, and have whites of eggs well beaten with four tablespoonfuls sugar. Add whites, stirring briskly until thoroughly mixed. Flavor, and turned into mold. If desired, serve with whipped cream. This will separate and form a jelly in the bottom with custard on top.

H. E. L., New York.

Honey Cookies are very good and economical. Pour half a cupful of boiling water over a tablespoonful of lard and two teaspoonfuls of soda. Add a cupful of honey, a cupful of brown sugar, a pinch of salt, two teaspoonfuls of cinnamon, two teaspoonfuls of ginger, and flour to make a soft dough. Roll out thin, and bake on carefully greased tins in a moderate oven.

Chestnut Dressing for Fowls—Hull and boil one pound of nuts until tender, peel off brown skin, add one cupful of fine bread or cracker crumbs, a little chopped celery or a half teaspoonful of celery seeds, season with salt and pepper; stuff the fowl, leaving room for the dressing to swell.

C. H., Washington.

ter and rub them till smooth. Then insert two or three small pieces of macaroni in the center of the pie. The juice bubbles up into the macaroni instead of running into the oven or over the top of the crust. Mrs. I. L. C., Nebraska.

To prevent wooden bowls from cracking grease them thoroughly, inside and out, with oil, or lard will do; let stand a short time, and you will not have the trouble of their cracking.

E. J. P., Florida.

Housewife's Letter Box

Starter Made Two Ways—Mrs. W. A., Michigan, asked if someone who makes bread with a starter would please tell her how to start the starter, and also give directions for using it.

Miss A. E. W., Kansas, submitted the following recipe for sugar yeast or World's Fair starter: One pint of lukewarm soft water, one-half pint of granulated sugar, flour enough to make as thick as pancake batter. Beat well, and keep moderately warm for from two to seven days. Be sure to use soft water, and also never to salt the starter.

The night before you wish to bake bread, set bread sponge the same as with any other yeast, using the starter. In the morning take out into a pint glass jar about half a pint of the sponge, sprinkle over it half a cupful of granulated sugar, cover lightly (never air-tight), and keep in a cool place for next baking. Now salt your sponge, add lard as big as an egg, also flour, and knead well; keep moderately warm. When light, push down and let rise again, then make into loaves with as little handling as possible. When loaves have risen to twice their original size, set the oven with low fire for first fifteen minutes, then increase heat, and bake one hour. This yeast will last indefinitely if used once a week or oftener.

The following recipe was sent by Mrs. F. M., New York, and Mrs. T. F. W., Oklahoma: One pint of mashed potatoes, one pint of water, two table-

spoonfuls of sugar, two heaping tablespoonfuls of flour. Mix all three while hot, let cool, and add one yeast cake, and set away until needed.

To make bread with it, cook three small potatoes, and mash; while hot, add the water the potatoes were cooked in (about one quart), two tablespoonfuls of flour and two of sugar; beat all up good, and let stand until cool, then add the starter.

In the morning stir well and take out about one cupful of starter. Have flour in bowl with a hole made in center, put in yeast, and about two-thirds pint of warm water to two pints of yeast, and one tablespoonful of sugar. Mix up stiff; let rise to twice the original size; mold into loaves; let rise, and bake. Bread is certainly excellent made this way.

Feeding Baby—Mrs. W. A. S. of Texas asked what to feed her baby who is fourteen months old. Mrs. J. H. H. of Washington says:

Baked potatoes may be fed to babies of fifteen months without harm if care is taken to mash the potato thoroughly. Baked apples may be fed without fear of injury.

Three or four tablespoonfuls of strained fruit juice once or twice a day is thought by some to be very beneficial. Doctors usually place this on the dietary as soon as the child is one year old. Beef tea or plain mutton or chicken broth will prove beneficial if used in small quantities. Care must be taken not to feed too much at a time.

Strained cereal may be fed twice a day without any injurious results. The idea is to make rather a thin porridge, which may be passed through a strainer so as to remove the solid portions which are too heavy for an infant's stomach.

Household Hints

Much in Small Space—Next time you go away for the week-end and want to take many different things in a small bag, try rolling them. They do not wrinkle and they take up so much less space. I roll my dresses, also my lingerie waists, and they turn out in a far better condition than they ever did when I used to fold them.

L. B., New Jersey.

No Trouble to Clean Silver—Into an aluminum utensil put one tablespoonful of salt and fill with clean water. Let come to a boil, put in your silver, let boil a few minutes, and your silver will be as bright as any polish could make it. Have utensil and silver free from grease. The utensil must be aluminum, and have the water cover the silver.

Mrs. C. G., New York.

Block of Wood Under Dishpan—Our kitchen sink is so low that the necessary stooping over it made my back ache, so I got a block of wood and put it under my dishpan, which raised it sufficiently for me to stand erect.

L. B., New Jersey.

To Liquefy Granulated Honey—If honey granulates or candies, it may be liquefied by setting the vessel containing it in another vessel containing hot water; not too hot, or it will spoil the color and flavor, and honey contains the most delicate of all flavors—that of the flowers from which it was taken. It may take half a day or more to melt the honey.

Mrs. I. L. C., Nebraska.

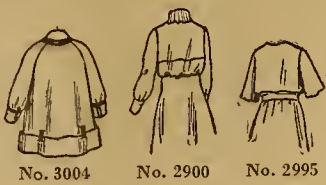
Protect Juicy Pies—When making juicy pies, moisten the edges with milk or wa-

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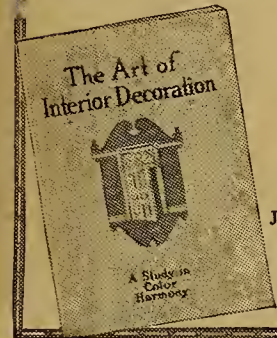
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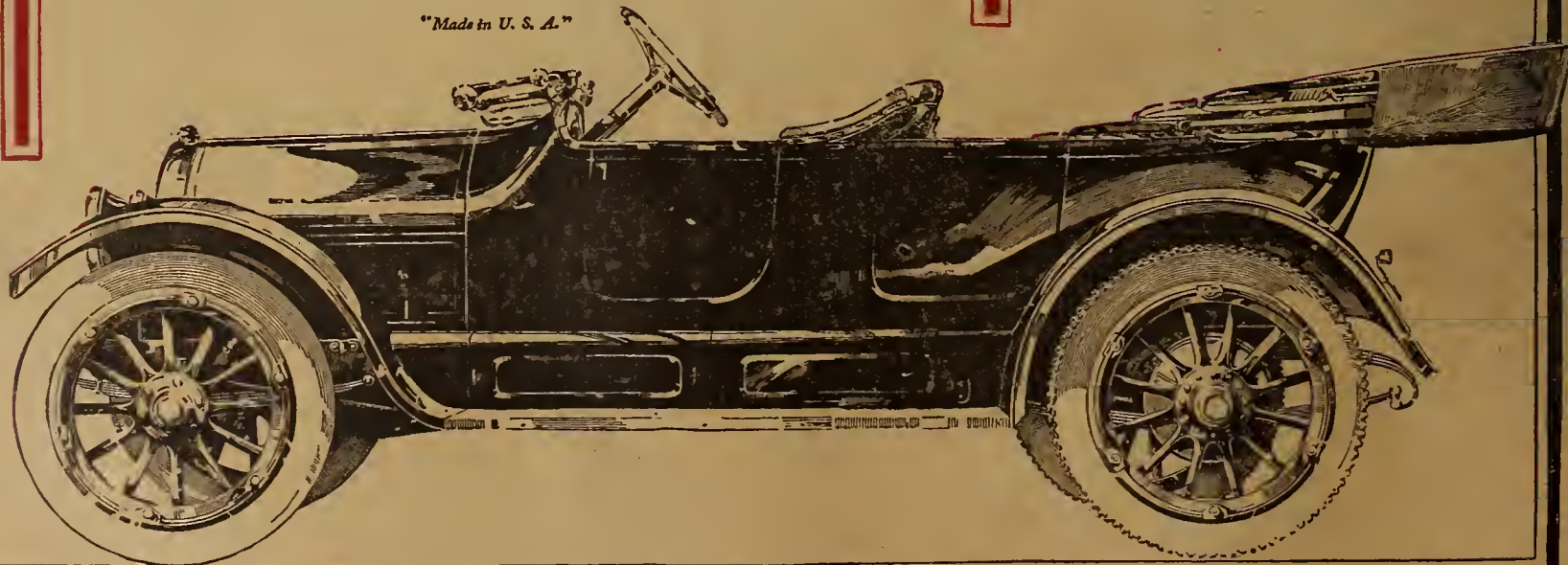
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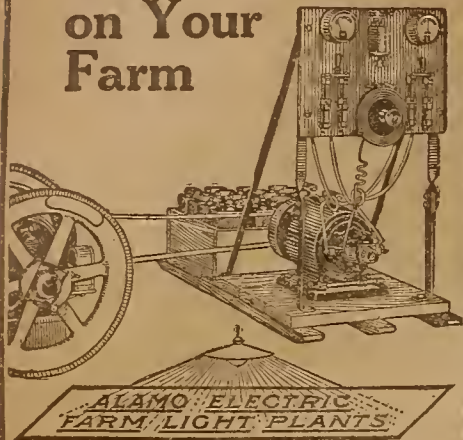
Saturday, April 22, 1916



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The Editor's Letter

Young Husband Wants an Opportunity to Get Back to the Farm

IF YOU were asked how many farm-bred boys and men are now living in our larger towns and cities, what would your answer be? Most persons shoot way under the mark when answering this question offhand. But if we do a little accurate reckoning it soon becomes apparent that there are now from three million to five million men who have forsaken the farm for city life. Big figures, you say? If at fault, my estimate is too low. When once we realize the size of this army of farm-bred city people we can better understand the significance of the "back to the land" discussion that continues and intensifies from year to year.

Every farm paper of importance is getting letters by scores and hundreds dealing with the matter of how the return transfer from city to country can best be brought about. Let me show you some extracts from a long letter in my morning's mail, coming from a big manufacturing city in Michigan. These letters help us to get the city man's viewpoint from his angle.

"I turned my back on farm life twenty-two years ago. I found no lack of work after reaching the city, but it took ten years of persistent plugging for me to work my wage up to \$20 per week. I then married a city girl accustomed to a better style of living than I could afford. But she was 'game,' and we decided to live within our income and gradually climb the ladder to something better. The best financial showing we could make at the end of the first year was a bank balance of \$125 to our credit. My weekly wage has worked gradually up to \$30. It is twelve years since we married, and our family has increased to six—a daughter eight years old, two boys six and four, and a baby girl two years old. Notwithstanding my growing income, our average annual saving has fallen a little short of \$200 a year, interest included. We have to figure closer now to save \$200 than we did to save \$100 when my wage was \$20 a week."

That nest egg of \$2,000 as a result of twelve years' saving will look pretty good at first glance to a good many readers. But has this family really done well financially? The writer of this letter (I withhold his name at his request) has still no home of his own. The \$2,000 will not buy them one. Even the cheapest contract house, set on a little cramped-up city lot in an undesirable part of his home city, would leave no trace of their nest egg when paid for. The next paragraph of this letter shows how carefully these parents have analyzed their prospects ahead of them:

Asks About the Future

"Now for a look at the future. Wife, children, and myself are all hearty and strong. Health and good fortune favoring, I can expect to hold my present job (a responsible one in a big hardware store), or a similar job, for a dozen or fifteen years. But I can expect no further increase in wages. Five years from now, high-school extras, business courses, and more expensive clothing for the children will furnish a hard problem for us to solve to make our income cover the year's expense account."

The picture sketched in by this father is by no means a disheartening one, even though it carries him beyond fifty and still shows savings hardly sufficient to pay for a second-rate city house and lot. Fortune favoring, he has the expectation of several years' employment at the same wages after the children can care for themselves. But the end of his look ahead finds no provision for a livelihood after his earning days are over. This is the cloud that is darkening the horizon of countless city families. But what follows is the most significant part of the letter:

"At our church club not long ago the question of farm and city opportunity was discussed, and it came out that of the fifty men present sixteen were farm-bred, and who, like myself, sought the city for a larger chance in life. Only three of the sixteen have succeeded much, if any, better than I have done. Several are just about breaking even. As the discussion went on it was argued by a number of the farm-bred men that it would be possible for a dozen or a score of families financially situated about as I am to move to some section of the country, probably in the South, where land is comparatively cheap, even though it has been injured by neglect and bad management, and there to settle as a community on a tract that would provide a farm of about 80 acres for each family. The plan advocated was to buy the equip-

ment for the farm on some co-operative basis, also improved breeding sires for stock-raising, building, household and farm supplies in the same way. It was agreed that one or two heavy tractors and several light ones would furnish power to operate the machinery on a dozen farms, and by hiring one practical successful farmer to manage the entire farming operation, a reasonable degree of success could be counted on from the start. This plan appealed quite strongly to most of the men present who were farm-bred, and to the number of about fifteen altogether. What won the favor of a majority of these men was the idea of being able to establish an up-to-date school and provide conveniences such as running water and electric light by co-operative means from the start. This would be brought about by locating the homes in a little settlement in the center of the tract purchased."

Proposes New Farmward Movement

This seems to be an absolutely new angle of the back-to-the-farm movement. Of course there have been real-estate boom schemes floated along somewhat similar lines, but the development of a plan by members of a city church club to carry church and school and social organization and modern city conveniences into farm pioneering puts a new phase on the city-to-country movement.

Let me suppose a case. Take, for example, a 1,000-acre tract in Virginia, Maryland, or one of the Carolinas where in slavery days tobacco followed tobacco, without much rotation, for several generations. Such land in some locations could be bought for about \$10 an acre without buildings or fences. Now, if the writer of the foregoing letter could marshal a dozen families having a capital of about \$2,000 each, they could pay for their farms of 80 to 90 acres and have left \$1,000 per family with which to build a cottage and provide stables, machinery, fencing, etc.

In the climate of the States mentioned, temporary stables and shelters would answer for stock, and the co-operative plan of securing farm equipment and supplies would materially lessen the early expenditures. Lumber, fencing, feed, fertilizer, lime, etc., could be bought in car lots at a material saving. "Ready cut" houses would make building possible and expeditious without much skilled labor. One deep well and pumping outfit would force water to all the buildings of the little community. The same power could operate an electric-light generating outfit for illuminating all the buildings. But, most important of all, this community farm scheme would do away with the heart-eating loneliness that soon takes possession of the average city woman when located on an unattractive run-down farm, among strangers, perhaps a mile from a human habitation.

Granted for a moment that such a scheme were undertaken and continued for a score of years. With wise handling and thrift the farms of the settlers could be improved to a point where they would be easily worth \$8,000 to \$10,000 each.

I have merely sketched in some of the more attractive possibilities of this community-farming picture thus far. Of course there is another and a darker side to such a plan of getting back to the land. Cutting loose from a sure though small income, a pleasant and comfortable home, and agreeable surroundings is a most serious undertaking for the head of a family to consider. No city family should think for a moment of making one of a farm community of this character unless both husband and wife have the real heart-hunger for the greater freedom and simpler life that country living affords. For a dozen years at least the farming operations cannot be expected to bring in much more than a living and a surplus sufficient to build up the productiveness of the run-down land. There would have to be a mortgage to piece out the working capital, and a plucky, united concentration of effort to work out solutions to the new problems that would constantly confront the settlers.

I realize I can do nothing more than imperfectly show two sides of this problem which this church club is studying. It is for the individual members to decide just what kind of a future the project would develop for them. Without question, the plan proposed by this club provides the opportunity for helpful man-to-man co-operation. Whatever the outcome of the discussion of this club, the movement is constructive.

The Editor

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FARM *and* FIRESIDE

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How a Maine Dairy Grows

Where 54 Cows Produce \$12,000 Worth of Milk a Year

By B. F. W. THORPE

IT NEEDS little argument to show that dairymen of the Eastern States and New England are at distinct disadvantage in producing dairy products economically in comparison with corn-belt dairymen. Thinner soil, longer and colder winters, greater transportation charges for purchased concentrates, all add to the expense of each pound of milk produced. However, in some of the sections bordering the great cities and manufacturing centers of the Atlantic Coast there is a stronger demand and better prices for fancy-quality cream, butter, and cheese.

One of these Eastern shining dairy lights that corn-belt and other dairymen can study with advantage is Bonny Meade Farm, operated by Charles S. Pope and Sons, Kennebec County, Maine.

This dairy business was started about sixteen years ago by the senior member of the firm when the sons were eight, ten, and twelve years old respectively. Mr. Pope began his farming and dairying operations when nearing sixty years of age, without having had former farming experience. His life up to that time had been spent in blacksmithing and metal-working. Five well-bred, carefully selected pure-bred Jersey cows were purchased as a foundation, and gradually as the business was mastered the herd was enlarged until at present 54 milch cows, 25 heifers, and 2 herd bulls are kept. After the sons finished high school, each completed a college course and returned to become members of the farm firm.

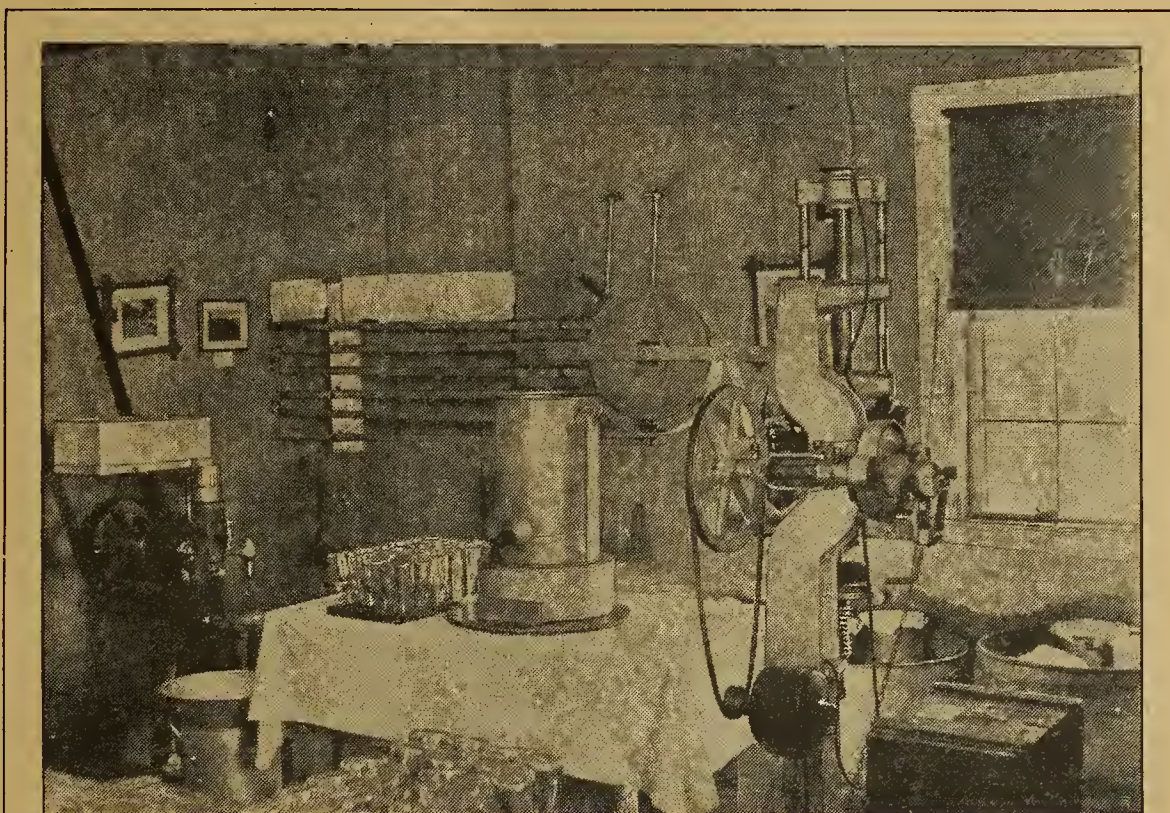
Each Cow Produces \$240 Annually

FOR about twelve years the finished product has been sold in Massachusetts cities in the form of bottled cream. The average gross receipts for the entire herd has of late years averaged about \$240 to the cow, or a total income of about \$12,000 annually from the 54 cows kept. Of course the expense account is a heavy one, but the business is quite satisfactory financially to father and sons.

"For a number of years the practice followed in feeding our dairy cows was to make a systematic study of the separate needs of each cow," said Alton S. Pope, one of the sons of the firm, "and formulate a feed ration in accordance with the various needs of the individual cows. In determining the ration we were governed by the cow's milk flow, condition of flesh, and period of lactation. We have modified our system of feeding considerably. Under conditions and prices existing ten years ago we found this system of feeding profitable, as the increase in production per cow more than offset the extra cost of feed and labor. However, the rapid rise in the price of labor and feeds is fast making such dairy practice unprofitable. Prof. W. A. Conant, to whom we are indebted for our entire system of feeding, states the case tersely in a recent letter to us: 'Times have changed, so methods must change; witness the abandonment by you and me of intensive dairying on account of the excessive price of grain and labor. A dozen years ago I believed that intensive dairying was the correct thing; a dozen years in the future, unless economic conditions change, everybody will recognize that intensive dairying is entirely out of place.'"

Realizing this change in conditions, Mr. Pope and his sons have tried to so develop their system of dairying so as to enable them to carry a larger stock for the labor and land employed without sacrificing all the advantages of the intensive methods. They are still feeding individual grain rations, compounded according to the condition and milk flow of the cow, but devote less attention than formerly to

EW



Gasoline and electric power are used to run the separator, the capping machine, and the other pieces of modern equipment in the Pope dairy house

slight variations. Close acquaintance with a cow soon enables them to form a fairly accurate estimate of her temperament and tendencies to put her feed into the pail or onto her back, and they formulate her rations accordingly. Such intimacy also acquaints them with any cow's peculiar likes and dislikes, which can often be humored, with slight inconvenience to the feeder and marked results at the pail. Just how far it is profitable to carry such a system is something each dairyman must determine for himself. Much depends on the dairy capacity of the cows, the cost of labor and feed, and most of all on the man.

"We are firmly convinced of the value of variety in the grain ration," continued Alton S. Pope. "At present we have eight kinds of grain to draw upon—bran, dried distillers' grains, hominy, gluten meal, cottonseed

meal, linseed meal, feed flour, and ground oats. From these we make up the individual rations, taking into consideration the price of the various ingredients as well as the condition of the cow. We seldom feed less than four kinds of grain in a ration, and take care to use enough of such bulky feeds as bran and distiller's grains to make a light, palatable mixture. In this way we avoid feeding large amounts of one or two concentrates, and most of the usual accompaniments of indigestion and udder trouble.

"The labor cost of individual grain-feeding is not excessive, as each cow's ration is set down on a feed sheet and her grain for two feeds measured out in pans during the day. These pans are stacked in order, and quickly handled at feeding time.

"In quantity our grain ration is quite orthodox—about one pound of mixed grain to three pounds of milk in winter, and one pound to four of milk when cows are on pasture. As our pastures are small, we plan to feed silage the year round except during the flush of spring feed. For supplementary feed on pasture we find silage more dependable and, on account of labor cost, cheaper than soiling crops. Ordinarily we fill one silo exclusively for summer feeding, using second crop clover if the corn crop is short. Last year we filled two silos with clover alone, and are now feeding from one with very satisfactory results. Pound for pound this clover silage seems quite equal to corn. When short of silage we have several times got very good returns from substituting dried beet pulp soaked with a small amount of feed molasses. At present the price of molasses is prohibitive, but many feeders report good success in using the pulp soaked with water alone."

Cows Fed Hay in Summer

IN ADDITION to grain the Popes feed what hay the cows will clean up, throughout the summer. Of course the amount is small during the first of the season, but even a little dry feed tends to correct the overlaxative effect of the new grass, and they find it very helpful in keeping the cows in condition. They do not expect good fall and winter work from a cow that comes to the barn poor in flesh.

Though they can get much better work from cows that freshen late in the fall or during the winter, a year-round cream trade obliges them to have them freshen at all seasons. For this reason they take more than ordinary care to have them freshen in good condition. Each cow is dried off about eight weeks before she is due to calve, and as soon as dry is fed a liberal ration of bulky, laxative grains such as bran, distiller's grains (oil meal when not too expensive), and some corn meal or hominy if her condition demands it, in addition to a fair feed of silage and as much mixed hay as she will clean up. Then, about twenty-four hours before calving, she is given a drachm of Epsom salts, with saltpeter and ginger, and thoroughly milked out. Immediately after calving, the cow is given what bran slop she will drink. This cleaning-out tends to allay any inflammation in the udder and, by somewhat delaying the milk flow, enables the cow to go comfortably with but little milking for about two days after parturition. This has proved an excellent preventive of milk fever in the Pope herd, as they average less than two cases a year.

"Such heavy feeding while the cow is dry may be criticized as expensive and dangerous," explained Mr. Pope, "but we find that cows of marked dairy temperament more than pay for the extra feed consumed, and are less liable to udder trouble when fresh, as they can be fed lightly the first three [CONTINUED ON PAGE 17]



The old barn has been practically made over and furnished with ventilators and milking-machine conveniences

Incomes in the Making

Stories of Small Farm Dairies and What Came of Them

By OUR READERS

Orphan Calf—\$189

By DAVID FLOYD

HOW well I remember one snowy day in January, 1890, when I was a lad eight years old. We had a very deep snow and I was doing the chores for my grandmother and going to school. Grandmother adjusted her glasses and asked me how much money I had.

I do not remember the amount of cash on hand at that time, which consisted of a few nickels and pennies, but Grandmother reached her hand down into one of those deep pockets old ladies sometimes have in their dresses, and handed me a bright silver dollar, saying: "Buy something useful, something you need; not guns, candy, or toys."

I kept that silver dollar until March of that year, when I made a visit to my grandfather's home on my mother's side of the family. While I was on this visit, Grandfather had the misfortune to have a young heifer thrown into a ditch by some of the other cattle, leaving a tiny red heifer calf, two days old, without a mother. I was very much interested in that little red calf, and asked Grandfather what he would take for it. He wanted to know how much I would give him, and I offered him my bright silver dollar. It was accepted, and the deal closed in short order, except I was to have my money back if Father did not allow me to keep the calf. When I asked Father about it he said it would be all right if I would tend the calf myself; but milk was very scarce, hardly enough for family use, and I would have to raise it by hand.

I stayed with that calf all my spare time, feeding it on bread, corn dough, wheat bran, and sometimes a little skim milk. I think I got the idea of feeding the calf on bread, corn dough, wheat bran, and skim milk from FARM AND FIRESIDE. Our farm was not a large or very productive one, and Father said I could have a rocky corner of the meadow to grow feed on for wintering my calf if I would pick the rocks off.

I went to work with a will, and after many days of hard work I succeeded in getting the rocks hauled off and dumped in a large sinkhole that was near-by. There was a cowshed near-by which had not been cleaned that spring, so I hauled out the manure, and spread it on my meadow, as I called it. I had a fairly good crop of hay. That little red heifer thrived on the treatment received and grew to be a cow, and one morning, to my great delight, I found a tiny little red heifer calf with my pet heifer.

I raised one more calf from my cow, and then traded the cow and her two calves for a three-year-old colt. I kept the colt for two years, using it on the farm, and traded it for a yearling colt and ten ewes. Sheep were worth about \$2.75 each at that time, and the best horses in that section brought about \$60. I kept the sheep and the yearling colt for three years, when I sold the sheep and increase for \$89. I also traded the colt for another horse, getting \$20 boot money. I then sold the horse I had traded for, receiving \$80 cash for him.

The actual cash received was \$189 for the use of one bright silver dollar for nine years, not counting wool from the sheep, work done by the horses, and the milk given by the cow. Give the little red heifer calf and the small farm boy a chance and he will not leave the farm.

Bull Proved Worth

By J. LEE BENDICK

IN 1907 my oldest son was taking a two-year course in agriculture at Cornell. We had just sold a small farm for \$900. Land was very cheap in this section at that time. Son came home and said that most all the students intended to farm for themselves, and he wanted to do the same. I looked around and found a good hill farm of 188 acres, a mile and a half from town. I wrote son that if he would come home and help me run it I would deed him a third interest when we had paid for it.

He agreed. So I bought the farm for \$3,050, and took possession in the spring of 1908, paying down \$1,150, which was all I had. Then we had to get tools, cows, horses—in fact, nearly everything to do business with—on "tick." How we paid for them would not interest the reader; perhaps, but it kept us interested for some time. The greatest cause of our success I am going to tell.

I had a cousin that was all for registered Holstein cattle. He wanted us to do as he was doing, but we could not see our way with no capital. He finally offered us a bull calf from one of his registered heifers for \$5—just to get us interested, he said. He talked so much and so long that to get rid of him we finally

took the calf; and it was the best thing we could have done. When the calves began to come they were finely marked, and when they began to milk they did the best at the pail of anything we ever owned. We had no trouble in selling the heifer calves profitably when we had more than we could raise. And a young cow from that bull would be sold at a good price as soon as we let it be known we had one to sell.

In 1911 we were milking from 18 to 20 cows and heifers. From then on until we sold the farm in 1913 our milk turned us better than \$3,000 a year.

In 1913, on account of poor health, and also because we could make more than \$1,000 over the cost price, we sold the farm. We had an auction, and sold the cows, horses, and tools. Well, cows were not as high then as now, but our dairy averaged over \$90 a head, young stock and all. The bull, then five years old, went too. Son had a little over \$3,100 for his five years' work. We were all out of debt when we sold the farm, and largely owing to that \$5 bull which we did not feel able to buy.



One cow and seven of her offspring. Dairy products pay the expenses; the value of the stock becomes clear profit

Pleased With Goats

By MRS. EDITH SLAGLE

IHAD read in FARM AND FIRESIDE of different people's experience with milch goats, and I decided to find out for myself. So we bought just an ordinary one for \$10.

"Nanny," as we called her, came fresh July 1st last year, and the little doe, which was half Toggenburg, was so nice we decided to raise her. We milked about a pint each morning from the mother and let the kid have the rest.

The milk was like cream in our coffee, which was what we wanted more than anything else. By feeding her bran and a little oats each day we kept the milk supply up till October. She has saved us \$5.52 cents' worth of milk which otherwise we should have had to buy, and likewise to have gone after ourselves. She eats onion tops, sweet and Irish potato peelings, and all the refuse from the kitchen that a hog would eat. Besides, she eats weeds in the cornfield—and there was such a crop of them left standing because of the wet weather last year.

We wouldn't take \$15 for the kid, and as both of the goats will come fresh soon it has been a profitable venture, as you can see from the figures:

Paid for goat	\$10.00
Expressage on goat64
Total expense	\$10.64
Kid worth	\$15.00
Milk worth	5.52
Total value	\$20.52

Deducting the total expense leaves a profit of \$9.88, which lacks just a few cents of paying the cost of the first goat. Please remember that she was just a scrub goat. Think what a pure-bred might do!

All From an Old Cow

By MARION C. SAFFORD

ABOUT twenty-five years ago a prominent member of the Holstein Friesian Association had a registered cow somewhat advanced in years but still a useful animal. He had sufficient stock without her, and he was unable to fatten her without drying her, which he was not able to do. So he offered her to me

for \$10, and generously offered the services of his herd bull as a further inducement.

Of course cattle prices were much lower then than now, but he had paid more than \$100 for her when a calf, and told me he believed her to be an excellent cow in spite of her age.

So I bought her, bred her, and she brought a heifer calf.

Altogether I have raised and sold eight females, besides several bulls, and have eight females left that I would not sell for less than \$800. The milk and other dairy products have paid for the expense and care of keeping the cattle, and the value of the stock is practically clear profit. It costs no more to raise pure-bred cattle than common stock, and the offspring sell at much better prices.

Shorthorns O. K.

By WILL H. SCHISLER

EIGHT years ago I attended a sale of a good milking strain of Shorthorn cattle with pedigrees tracing back to imported Scotch ancestors. The owner of this herd was old, his sons took no interest in cattle, and the season was one of great drought. Consequently, pastures were badly burned out and the cattle were in such poor shape that many people were afraid to bid on them.

I bid on a cow that was due to calve in a month, and she was sold to me for \$44. A neighbor bought a non-related bull, which made breeding very convenient.

She is now one of the finest specimens in our community, and I have a herd of twelve pure-bred Shorthorns besides having sold three bull calves at very satisfactory prices. Pure-bred stock always appeals to the owner in such a way that he gives it the best of care, and as a result he is usually successful.

Good Cow

By MRS. J. LAMPMAN

SOME years ago, soon after we had purchased our farm, we became anxious for a start in pure-bred Holsteins. The farm needed every cent we could make, but I told my husband I would undertake to pay for one cow if he would consent. So he secured a pure-bred three-year-old Holstein cow for \$125. I was to pay for it as I could.

I took excellent care of a flock of pure-bred Leghorns, boarded the school teacher, raised garden truck, sold mince-meat and apple butter, and every penny I could spare went toward the cow. It took a year and a half of self-denial to pay for her.

In the meantime she presented us with a fine heifer calf. The next year she did the same. To-day we have 13 head of pure-bred Holstein cows and a heifer and also a herd bull we are proud of. By arrangement with two other breeders, each keeping one good bull, we conduct the breeding without inbreeding, and follow out line-breeding, which has given splendid satisfaction.

Herd Built Quickly

By EMMA WORTHINGTON

TEN years ago I bought a three-months-old roan heifer calf for \$7. She freshened at the age of twenty-three months, and speedily showed that she was a good milch cow. Here is a list of calves produced and what they sold for:

- 1907—Steer calf sold at four months for \$10.
- 1908—Heifer calf sold at three years (after raising one calf) for \$38.
- 1909—Heifer calf sold at one year for \$25.
- 1910—Steer calf sold for beef for \$24. Also sold first grandson for \$24 at same time.
- 1911—Calf died.
- 1912—A heifer calf was raised, and I still have her. She is worth \$50, and has a year-old heifer calf worth \$20.
- 1913—Heifer calf which became a good cow at two years old, and is worth \$50. She also has a heifer calf a year old, worth \$20.
- 1914—Heifer calf that will freshen next month, and is worth \$50.
- 1915—I sold the cow with another heifer calf for \$46.

Altogether my sales have amounted to \$167, and I have cattle on hand worth \$190. Unfortunately, I did not keep a record of the milk and butter sold, but it brought more than enough to pay for the feed. This little account shows how fast one can build up a herd.

The little heifer was only three months old when I bought her, but you can see what good results can be obtained from small beginnings if you simply take a little pains to give farm stock the right chance. This means good feed, good care, and reasonable comfort.

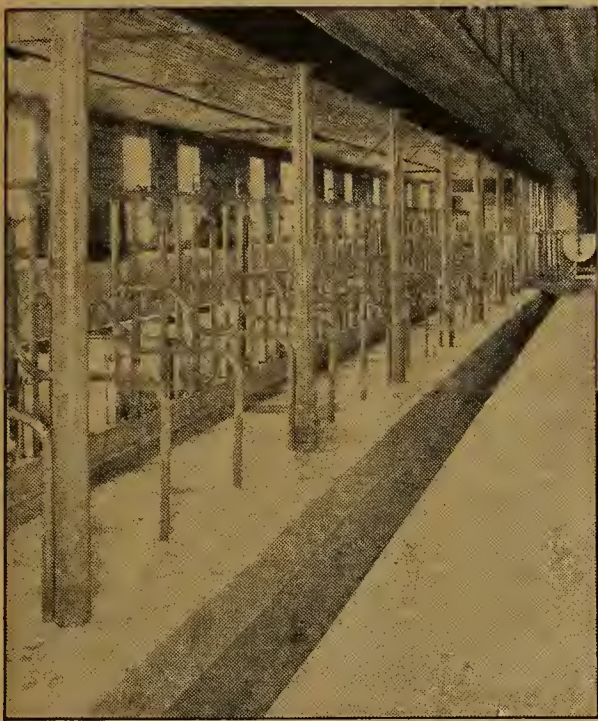
My original cow was not of dairy stock; nor, so far as I could learn, did she have the blood of any of the prominent dairy breeds, but she was dry but twice during all this time. But whether you are raising dairy cattle or the beef breeds, or are trying to get both milk and beef, the results are the same.

Simply keep the heifer calves, breed them, and in about eight years you will have as large a herd as you are equipped to take care of unless you know by previous experience how quickly a cattle business can be built up.

More Milk; Less Work

Barn Improvements Take the Drudgery Out of Dairying

By D. S. BURCH



Dairymen prefer swinging steel stanchions because they are strong, light, and easily cleaned

LAST winter, during Farmers' Week at one of the agricultural colleges, a dairyman made a visit to the college herd. He spent several hours at the dairy barn, examining the equipment and noting the records of the cows. "Shucks," he remarked when about to leave, "I thought a college dairy would be a sort of show place. This isn't any better than I have at home."

Ten years ago an incident of that kind wouldn't have happened. The time wasn't ripe. "What's the use of paying out half of the cream check for the cost of a cement floor when I can go out into the woods and hew enough nice oak lumber to make a good plank floor?" That was the sentiment. But the colleges went on preaching and setting the example of better methods, and lately they are having trouble in keeping up with the pace they have set.

Comfortable, well-fed cows give at least a third more milk than those which pass the winter nibbling at the straw stack or shivering in a shed. More dairymen are also testing their herds and sorting out the "critters." One good record leads to another, and presently the best cows find themselves surrounded with comforts that make possible still greater production.

Finally the time comes when the wooden gutters in the barn rot out. The old wheelbarrow that so faithfully carried out ten thousand loads of manure finally gets a drunken wobble. But the herd itself has become bigger and better.

When One Plans for New Construction

AT THIS stage of the dairy business, which most now-prosperous dairymen have been through, visions of metal and concrete construction and carriers on overhead tracks come down out of the thin air and begin to take the shape of definite plans.

Then come questions. How practical are they? What do they cost? Will they save labor? These questions can be best answered by a brief description of each item:

SWINGING STEEL STANCHIONS—These differ from the rigid wooden stanchion in being fastened at the top and bottom only. They allow the cow to look around, to get up and lie down in a natural way, and to change her position easily. Cows are more comfortable and less nervous. There is no direct evidence that swinging stanchions in themselves increase milk flow, but being lighter and more sanitary they are preferable to rigid stanchions. A good grade of swinging steel stanchion costs about \$1.75 per cow.

ADJUSTABLE STANCHIONS—These have adjustments for accommodating different sizes of cows. One style, for instance, is adjustable from 5½ to 8½ inches in five different widths. The variation is three fourths of an inch. Stanchions of this kind cost about \$2.25.

WOOD-LINED STEEL STANCHIONS—Some dairymen believe that an all-steel stanchion is cold on a cow's neck in winter. Others dispute this claim on the basis that a stanchion does not

press against the neck and that the hair is as good an insulator as a mitten is to a person's hand. A wood-lined stanchion differs from an all-steel construction simply by having wooden strips fastened to the inside of the steel bars. They cost about \$1.75 apiece—the same as all steel.

STEEL PARTITIONS BETWEEN STALLS—They are more easily cleaned than wooden partitions, do not shut out the light, and occupy less room. Steel partitions as commonly used also brace the stanchion frame and keep the cows from crowding each other. The cost is about \$5 apiece.

CONCRETE MANGERS—They have no crevices to collect dust, and are more easily cleaned than wooden managers. To be satisfactory, concrete managers must be made in the proper shape and proportions. The general direction of slope should be toward the cow.

CONCRETE FLOORS AND GUTTERS—When made so as not to be slippery and free from sharp corners, this construction is excellent. Concrete floors and gutters are easily cleaned, do not absorb manure, and are rot-proof. Stalls themselves should be well bedded or covered with wooden panels in winter.

CREOSOTED BLOCK FLOORS—Creosoted blocks such as are used for paving streets make an excellent floor for cow stalls. They are usually made of yellow pine and measure about 3x3x8 inches. They are laid on a concrete foundation, and the crevices between them are filled with tar or asphalt. Including the cement base such a floor costs about \$3.50 for a stall 3½x5 feet.

CORK-BRICK FLOORS—The nearest approach to a perfect cow stall is perhaps the cork-brick construction. The cork bricks are made of a composition containing ground cork, tar, asphalt, or other adhesive waterproof material. Cork bricks make a sanitary floor which is neither slippery nor cold. The cost is about \$6 for a stall of the average size, including the concrete base.

ADJUSTABLE STALLS—In building stalls of permanent materials such as those mentioned, the difficulty is sometimes encountered of not knowing the size of the cows. This is especially true in establishing new dairies. When the stalls are all in a row you can make them somewhat longer than average size at one end and shorten them to less than average size at the other.

Carriers Save Much Work

SHORT stalls should measure 4½ feet from manger to front edge of gutter, and long stalls 5½ feet. Then the cows may be fitted to the stalls of most suitable size. Stalls are of correct size when they measure from 10 to 12 inches longer than the distance from the front of the front feet to the back of the hind feet when the cow stands in natural position. As a further means of having stalls of correct size, you can use steel stanchions having adjustable holders. They permit the stanchion to be set forward or back, giving a total adjustment of about a foot. Such adjustable holders cost about 30 cents.

LITTER CARRIERS—These are made in a wide variety of styles and sizes. Some run on flexible cables, others on rigid tracks. For indoor use, tracks are better. The more improved carriers have raising and lowering devices so they may be let down for filling. Self-acting styles will carry the load to the desired place, dump it, and return automatically. A first-class carrier costs about \$20, and the track about 15 cents a foot.

FEED CARRIERS—These are similar to litter carriers except in being designed for handling feed. Though used mostly perhaps for grain and silage, hay and bedding may be handled in large quantities by specially designed carriers. Some carriers are made to open at

one end, others at both ends, which allow two men to work at the same time. Side-opening carriers are also made. When different kinds of carriers are to be used on the same track, it is best to have a switch so that those not in use may be run onto it and be out of the way.

FEED TRUCKS—In barns with good floors and fair-sized passageways, feed trucks save much of the work in caring for stock. Overhead carriers, on the other hand, are more practical for filling feeding troughs in the barnyard. A good grade of feed truck, with swiveled wheels at each end for easy handling, costs about a dollar per bushel of capacity.

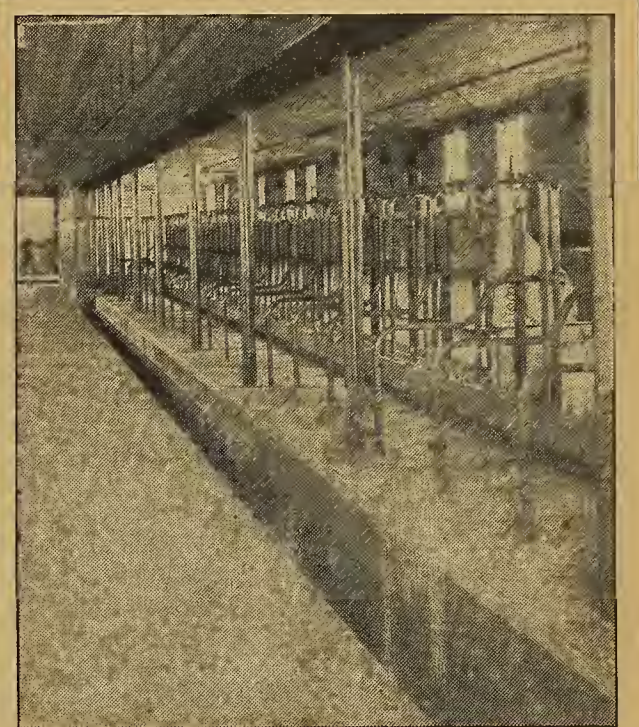
WINDOWS—Direct sunlight is the cheapest germicide, and you cannot have too much of it in the dairy barn. Four square feet of glass to each cow is a good, practical proportion.

REINFORCED STEEL POSTS—Posts in a dairy barn for supporting the floor above must be strong and yet not be so large as to take up much room. If the posts are near a passageway, have them round to prevent injury to cows from sharp corners. Hollow steel posts filled with concrete are good. Such a post 3½ inches in outside diameter and 9 feet long will support eight tons.

Figure the Cost to the Cow

VENTILATING SYSTEM—Bad air is a slow poison to man and beast. The weight of air (.08 pound per cubic foot) which a cow breathes is about twice the weight of the food and water she drinks. In the King system of ventilation, which is one of the best, the fresh air enters near the ceiling, where it is warmed by the air in the barn and cannot produce a chilly draft. The foul air is carried away by flues whose openings are about a foot from the floor.

MILKING MACHINES—These have been greatly simplified and improved. For herds of 20 cows or more,



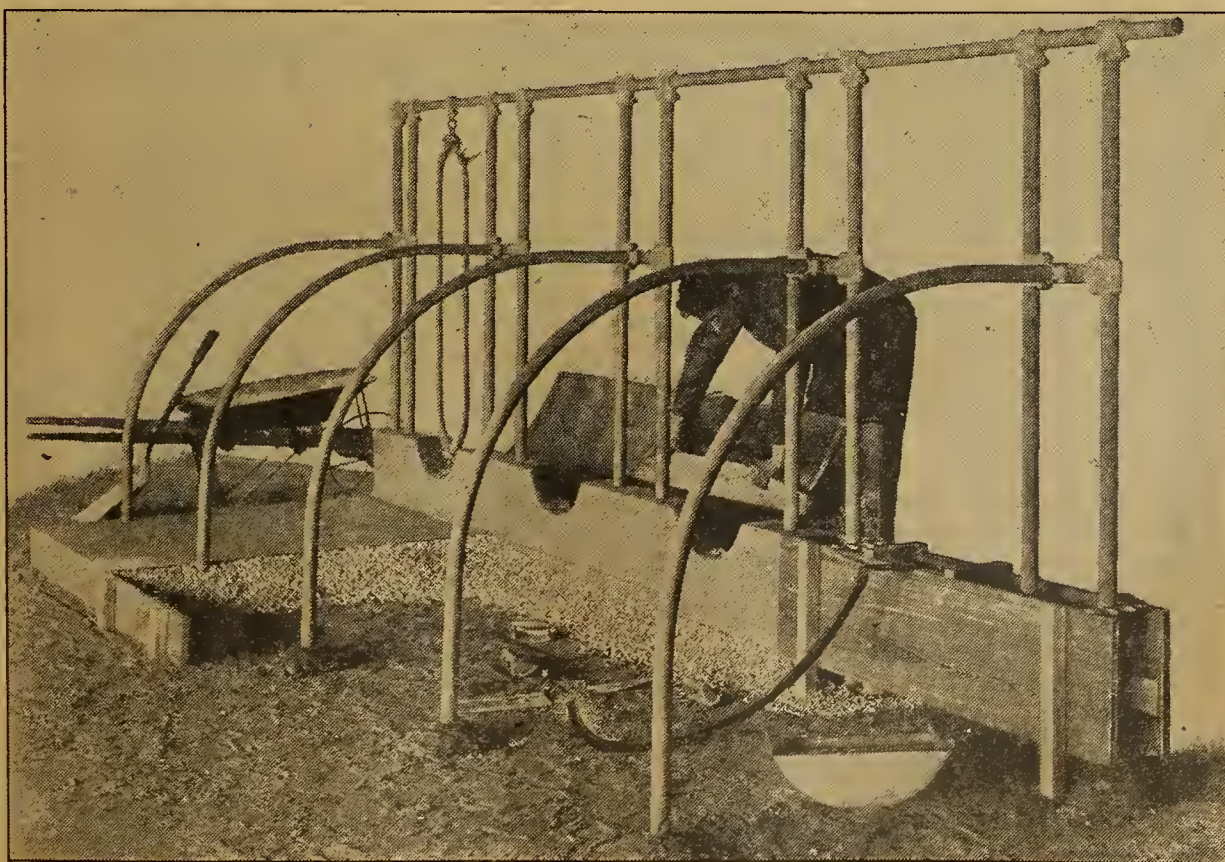
When good cows are well housed their milk flow keeps up during the winter season

milking machines properly managed will more than pay their way. For smaller herds their practicability depends on the earning power of the herd and the cost of hired help. At present, milking machines may be bought at prices from less than \$100 to \$500.

VACUUM CLEANERS—One of the latest wrinkles in dairy management is the alleged benefit of vacuum curry combs and other suction devices for cleaning cows. The idea is to prevent dust and hair from getting into the milk. But a good dairyman never curries his cows just before milking time, and if he cleans them at all it is with a damp cloth. Vacuum cleaners are most useful as talking points in catering to certain customers or for impressing visitors.

Dairy barns with steel stalls, cement floors, and equipped with carriers on overhead tracks can be built at costs ranging from \$40 to \$80 per cow. One authority claims it can be done for less than \$25 per cow in the case of a 20-cow dairy, and he presents figures to prove the assertion. But even at an average estimate of \$60 per cow, such a barn becomes a paying proposition. Allowing a 10 per cent charge for depreciation and interest on investment, the annual stall rent assessed against each cow will be \$6. The surplus milk which a well-cared-for cow will produce should easily repay half that figure, and the other half will be saved in the reduced amount of labor.

When the cost of a dairy barn and its equipment exceeds \$100 per cow, you are beginning to tread dangerous ground, though good management, good cows, and extra good markets may justify such an investment.



One can plan for home construction because the work is not difficult, and may be done at odd times. This is another way of turning extra hours into profit

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April 22, 1916

The Place We Lose

ORDINARY wood ashes contain five or six per cent of potash and two per cent of phosphoric acid. These are valuable fertilizers. They also contain about 30 per cent lime, which is needed in many soils. The fertilizer elements in wood ashes are worth 20 to 25 cents a bushel. And yet, how many of us save them as carefully as we should?

A Hold-Up System

TRANSFERRING farm ownership from seller to buyer should not be the occasion for a hold-up, but too often this is exactly what occurs in two senses. From five to ten million dollars is not too great an estimate of the needless expense involved in the transfer of American farms annually.

In certain States and parts of States, among which are Illinois, Minnesota, New York, Massachusetts, and Washington, the transference of a farm from seller to buyer is merely the matter of minutes after the transaction is brought to the attention of the registrar of the county. The certificate of the registrar thereafter settles the matter. There is no going back of his certificate. Lawyers' and abstracters' fees are no longer necessary. Every time a tract of land changes hands the certificate of title is transferred to the owner.

This new plan, which makes possible the quick, safe, and sane changing of land ownership, is known as the Torrens system of keeping the record of land titles. All that is required under the Torrens system is for the owner of land to take his abstract to the registrar of titles of the county. If the deed is found good a certificate of title is issued by the registrar.

Then why not make use of this system the country over? All farmers are keen for this new system as soon as they realize its advantages, but efforts to adopt it are met by strong opposition from lawyers and abstracters, and the makers of our laws, be it remembered, are practically all lawyers.

Egg Speculation

MANY instances go to show that an old egg is a doubtful if not a dangerous thing to have in one's possession. Last season's stored eggs again prove it. When bought and stored a year ago at an average price of about 20 cents the dozen, they seemed a fairly good prospect. In October these eggs began coming out of storage at 24 to 26 cents. From then on to the close of the holiday season the price the holder received fluctuated between 22 and 25 cents. In January, stored eggs touched 18 cents. The last drive to clear out the storage depositories before the spring slump arrived battered the price down to 16 cents for second-grade stock.

There are a number of interpretations of the cause of the lower egg price last fall and winter. Among the natural influences were a large pack of stored, cheaper pork, more unsalable grain for chicken feed, and flatter pocketbooks among the mass of consumers. Some for-

tunate buyers who also became fortunate sellers made a nice profit. More operators came out barely safe, and not an insignificant number experienced the bitterness of the game of chance.

The lesson from an overpack of stored eggs is loss to the packers and the egg producers as well. Had less eggs gone into storage last year, spring and early summer prices would have been somewhat lower, but fall, winter, and present prices would have been higher and the poultry industry would have been benefited.

The Distance to Church

HOW far away from the farm home may the country church be and still expect regular church attendance from the members of the home?

This question was raised by a statement made at a meeting of farmers to the effect that the Grange in Ohio is working, among other things, for a church within driving distance of every farm home.

The object of the Grange is to be commended, but is it not true that the distance between farm and church to-day is less in matter of time than it was ten years ago? Is it not possible that improved forms of transportation and better roads may change again the distance between the church and the farm?

To-day the motor car makes possible many things not thought of several years ago.

Everyone could do better work in helping bring about the end aimed at by the Grange if someone would make plainer just what is meant by the "driving distance" between the church and the home.

Winter Tractor Shows

WHILE farm horses contentedly munched their oats last winter, tractors lived up to their reputation of year-around service. For in several important cities of the Middle West, tractor shows were held, and notably in Kansas City the attendance was highly encouraging.

While the tractors were unable to do any plowing, they were on exhibition and afforded a chance for visitors to see how they were made, and to compare different makes and sizes. A tractor is too big an investment to be bought without careful consideration, and the winter tractor shows gave an opportunity to study tractors at leisure when time on the farm was least valuable.

Exhausting the Soil

IT IS not alone in the older States that the soil impoverishment is a problem. South Dakota was a virgin prairie of supposedly inexhaustible fertility within the memory of most of us, but her wisest men are already sounding the alarm of soil robbery. Doctor Hume finds that a field cropped twenty-seven years in that State has lost nitrogen at the rate of one per cent a year. This means that long before the century of cropping has passed there will be so little nitrogen that farming will no longer pay on that soil unless the nitrogen is restored. It is not a problem for future generations, but for us here and now.

"As for phosphorus," says Doctor Hume, "in a number of South Dakota corn, wheat, and clover belts the surface contains 1,440 pounds of the element phosphorus. A hundred bushels of corn contain in the grain seventeen pounds of phosphorus." This shows enough phosphorus in the surface for only about eighty-five crops. Land without phosphorus is a desert.

In some parts of the country potash is as important a lack as either nitrogen or phosphorus, and lime is quite as lacking as either. There is plenty of nitrogen in the air, which can be restored to the soil by electric-power plants, can be stored up by leguminous crops, and can be imported from the nitrate fields of Chile. There is plenty of phosphorus in our phosphate beds. There is lime in plenty

in our limestone ledges. There is plenty of potash to be imported from Germany and to be derived from seaweeds and perhaps from our own mineral deposits.

The first fertility problem is in our own minds. We must feel keenly the loss in every crop—which we cannot see. Then we shall face the question of how to get the nitrogen, the phosphorus, the potash, and the lime cheaply enough so that we can stand the expense. Whenever and wherever we can buy these elements and get such results as not to saddle a loss on us, we should use them. Beyond the individual problem lies a national one, to be solved governmentally. It is the greatest conservation question and consists largely of the problem of transportation involved in getting the mineral fertilizers and manures back to the land. It is the real back-to-the-land problem.

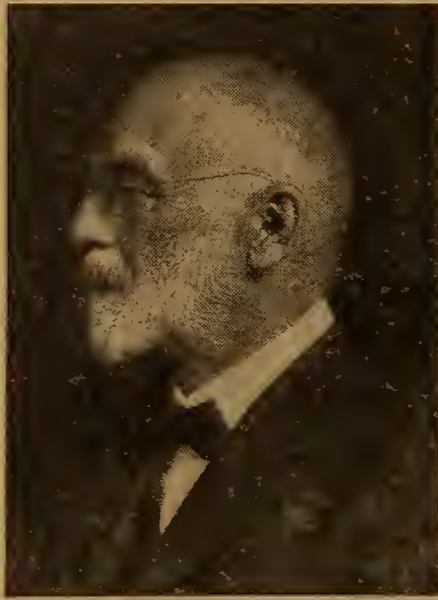
Dr. Babcock, Inventor

A QUARTER of a century ago last July the Wisconsin Experiment Station announced that Dr. S. M. Babcock, its chief chemist, had discovered a rapid and accurate test for the richness of milk and its products. Three years before, in 1887, Congress had established most of the state experiment stations under the Hatch Act, and in response to a widespread demand for such a test six inventions of similar nature had already been made, but were impractical.

At the request of Dean Henry, well known to farmers as the author of "Feeds and Feeding," Dr. Babcock devoted his energies to the problem, but results were slow in coming. The story is told that Dean Henry concluded Dr. Babcock was wasting his time, and assigned other work to him. But Dr. Babcock, with the spirit of the true inventor, took his apparatus home with him and set it up in his cellar. A few weeks later he developed the test which now bears his name.

Dr. Babcock refused to have it patented, and, in the absence of inventor's royalties, it is now made and sold the world over at reasonable prices. In 1891, the year following its invention, the Wisconsin Dairy School opened its doors and was attended by two pupils. The next year there were seventy, and instruction was given by Dr. Babcock, assisted by H. B. Gurler, now a farmer of Mississippi and a frequent contributor to FARM AND FIRESIDE.

Ex-Governor Hoard has said that the Babcock test has made dairymen more honest than has the Bible. When milk and cream are sold on the basis of their butterfat content as determined by the Babcock test, nothing is gained by watering. Dr. Babcock is still on the scientific staff of the Wisconsin Experiment Station. He has made many valuable con-



Very truly yours,
S. M. Babcock.

tributions to science and his counsel in matters pertaining to chemistry is still sought. Unspoiled by publicity, Dr. Babcock is extremely modest, preferring to listen rather than talk. And now in his seventy-second year he is still interested in matters pertaining to the dairy industry of which his test is the cornerstone.

Our Letter Box

Buckles Safer Than Snaps

EDITOR FARM AND FIRESIDE: In your issue of February 26th Chester G. Reynolds has an article advocating the liberal use of snaps on harness. This is often very good advice, but I have seen it advocated so often without modification that I think it time to sound a "safety first" warning.

I used to use snaps in all places that they could be used. But about a year ago I was driving to church with a rather spirited team of young horses hitched to a surrey in which were my wife and several small children. While trotting along down a slight grade, in some manner I never could explain, and at the same time, both inside check snaps dropped loose from the bits. I at once applied the brake and called "Whoa!"

They stopped before they knew anything was wrong. I got out, examined the snaps, found them apparently good, took them off, threw them away, buckled the lines in the bits, and drove on to church.

In this case no harm was done, but, as Whittier puts it, "it might have been."

Since then I take a little more time to hitch up, but feel safer. I would say if you are sure your team is perfectly safe and that the snaps cannot get open (I have never seen any yet that you can be sure of), use snaps; if not, use buckles, at least on your driving lines.

HOMER N. CAMPBELL.

Likes His Tractor

TO MR. F. W. B., CARE OF FARM AND FIRESIDE: I saw your article, "Back Up, Old Ironsides!" in which you said you needed more and cheaper power, and that you wanted a tractor light, compactly built, close connection to plows and other tools, and one that could turn square corners and back up into fence corners.

Now I have a tractor here that will do that and more; in fact, it will do any work, and will go over ground too soft for a team to work on. It has 18 horsepower on the drawbar, and will plow 20 acres a day on 25 gallons of gasoline.

E. D. NORTHSTINE, Missouri.

Her Cow Profitable, Too

DEAR EDITOR FARM AND FIRESIDE: After reading Mrs. F. Gates's article in FARM AND FIRESIDE I concluded that I too had a cow worth telling about. During her second lactation period, from April, 1914, to August, 1915, I sold \$185.85 worth of dairy products, besides the milk, cream, and butter used in our own family of four. Skim milk was fed to the chickens or given away. Her total cost of feed during that time was \$55.

Daisy is now a little over five years old, and had her third calf a few months ago. It was allowed to suck, and when twenty-four days old weighed 180 pounds. Since that time the cow has kept up her former record.

As clover hay cannot be had here, I have been feeding the cow marsh hay, bran, and a little ground corn and oats.

MRS. M. TANKE.

Gates Close by Gravity

FARM AND FIRESIDE: I read Mr. H. A. Bereman's article on "Shut the Gate" with interest because whenever I see anything in the papers on gate improvements I compare them with my own.

We have here on our Arkansas claim, way out in the woods, 30 miles from a railroad, four small gates that close and latch automatically, and one large gate wide enough for a hay rake that is also self-closing unless we hook it open. I don't believe in letting the wind play with doors and gates. None of our gates have springs or weights; all are closed by gravity.

J. BODINE.

Western Heroes of To-day

EDITOR FARM AND FIRESIDE: I noticed a letter of inquiry from one of your subscribers who asks about settling on government land in the Dakotas. I am the son and grandson of pioneers, and know something of the hardships in settling on government land and complying with government regulations. From the suffering I have observed in the last thirty-six years, and from seeing people who have come West losing all they had, I am loath to encourage the subscriber to try homesteading. The best homestead land is already occupied, and when new lands are opened up the cost of improvements is in many cases prohibitive.

We all know the inspiring story of Daniel Boone and the great Indian fighters, and many Eastern people think they are posted on the conditions of the West. But I want to tell them that the true history of the pioneers of the West has never been written. You will find them to-day all over the plains of western

EW

Oklahoma, Kansas, Nebraska, eastern Colorado, New Mexico, the Dakotas, Wyoming, Montana, and Oregon. They live in half dugouts on the unbroken prairies, drawing water by hand from wells 200 feet deep, or carrying from a stockman's windmill a mile or two away, while their husbands are miles away working at any job they are lucky enough to find, for the next sack of flour.

Those are the true heroes of the West. But to anyone who will come West and farm as Nature demands, the returns are sure. The whole semi-arid West is a stock country, and if you will bring ten good milch cows and a cream separator you can gamble with Uncle Sam, betting \$22 against living on his land the allotted time and stand a chance of winning. To such the climate and soil of eastern New Mexico are about as good as can be found.

G. L. HAAS.

From an Old Friend

DEAR EDITOR: In your letter to me you call me one of the old members of the FARM AND FIRESIDE family, and indeed I am, for I subscribed for FARM AND FIRESIDE in 1879, while it was published in Louisville, Kentucky. I lived in eastern Tennessee then, and, with the exception of one short period of time that I allowed my subscription to run out, I have been a constant reader ever since. I came to Kansas in 1898, and had the paper sent to my address here, so you see I have been taking the paper eighteen years here in Kansas. Altogether I have been a reader for about thirty-seven years.

J. T. McM., Kansas.

Bits of Good Humor

A Big Laugh

Mr. Jones had become the father of twins. The minister stopped him in the street to congratulate him.

"Well, Jones," he said, "I hear that the Lord has smiled on you."

"Smiled on me?" repeated Jones. "He laughed out loud."

Perhaps She Did

MRS. OWENS—I wonder if the doctor's wife meant anything personal just now.

OWENS—What did she say?

MRS. OWENS—She said we might at least pay them a visit.

Had Tried It

SUITOR—What makes you think, sir, that I will not be able to support your daughter?

FATHER—The difficulty I've had in doing it myself.

Essay on Sheep

The sheep is a chunk of misguided animation which is afflicted with a perpetual cold in the head, and has the appearance of always needing its nose wiped, but it has the distinction of being the only animal, man not excepted, which can afford to wear strictly all-wool clothing the year round.

The chief occupation of the sheep is stampeding, and in this it is the champion of the universe. The sheep will stampede upon the slightest provocation, start off with a soul-stirring bleat in one hand and its life in the other, run twenty-one miles, and jump over a precipice. It then is mutton.

The sheep might be all right in its way, but it is too closely related to the goat, both in the durability of its head and in general disposition. Church bells



and school bells, dinner bells and blue-bells, cow bells and dumb-bells, any kind of a bell the sheep will follow.

Probably the greatest accomplishment of the sheep is getting itself lost in a snowstorm, and it is such a success at this that a number of famous painters have put in a lot of time painting pictures of sheep working at this.

EW



A Real Value

It is an easy matter to make claims and to advance opinions. It is a simple thing to appropriate all the known motor car virtues and apply them to any automobile. Inexpensive diversions these, and there's the chance that some one may be impressed.

We haven't the inclination or the temptation to submit anything but facts. For we have the facts—convincing and significant facts—and one real fact is worth a legion of mere beliefs.

The Maxwell car holds the World's Endurance Record—22,023 miles without stopping the motor—500 miles per day average.

The Maxwell car has set numerous records for economy of gasoline—varying from 21.8 miles per gallon on the World's Endurance Record run to 36.8 miles per gallon on other runs that were planned to prove the economy rather than the endurance of Maxwell cars.

The Maxwell car, on account of its light weight and correct bal-

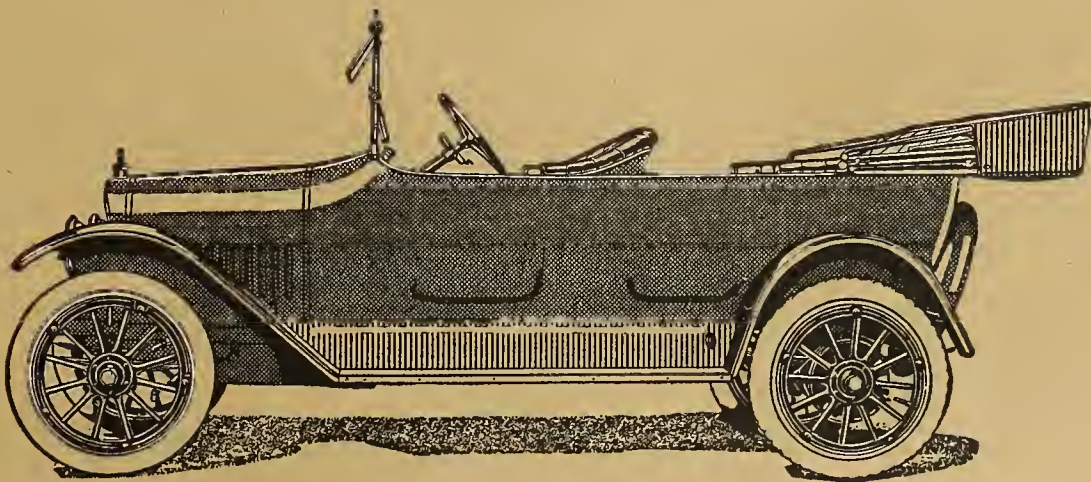
ance, always gives noteworthy tire mileage—averaging 9,871 miles per tire when setting the World's Endurance Record.

These are facts—established and proved facts. They help to make up Maxwell value. And when considered along with the physical attractiveness and the same complete equipment of much costlier cars, the result, Maxwell owners tell us, is a value that stands alone.

It is this value that is responsible for the doubled production of Maxwell factories. It is this value that is responsible for the 40,000 sales of Maxwell cars that were made last year to American farmers. It is this value that is responsible for the good will and popular favor the Maxwell car has earned.

You can get out of any car only what is put into it. Service and satisfaction do not simply happen. There is an adequate and powerful reason for the unquestioned leadership, in their class, of Maxwell Motor Cars.

The World's Champion Endurance Car



Touring Car, completely equipped, including Electric Starter and Lights, \$655, f. o. b. Detroit. Four other body styles.

Maxwell

MOTOR COMPANY, DETROIT, MICHIGAN

Write to Dept. 8 for our catalog giving detailed specifications and our booklet "22,000 Miles Without Stopping."

GOOD WORK

Proper Food Makes Marvelous Changes.

Providence is sometimes credited with directing the footsteps by so simple a way as the reading of a food advertisement.

A lady in Mo. writes, "I was compelled to retire from my school teaching because I was broken down with nervous prostration.

"I suffered agony in my back and was in a dreadfully nervous condition, irritable, with a dull, heavy headache continually, had no appetite and could scarcely digest anything. I was unable to remember what I read and was, of course, unfit for my work.

"One day, as if by providence, I read the testimonial of a lady whose symptoms were much the same as mine, and she told of how Grape-Nuts food had helped her, so I concluded to try it.

"I began with Grape-Nuts, a little fruit, and a cup of Postum. I steadily improved in both body and mind. Grape-Nuts has done more for me than all the medicine I have ever taken. I am now well again and able to do anything necessary in my work.

"My mind is clearer and my body stronger than ever before." "There's a Reason." Name given by Postum Co., Battle Creek, Mich.

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest.

\$7.89 Paints This Big House 2 Coats

Size of this house 28 x 22 x 13. Figure your saving on your house or barn at these prices:—Evercote Ready-to-Use House Paint \$1.02 a gal., Evercote Barn Paint 93c a gal. Write for Book of Bargain Prices and 156 Color Cards FREE

Freight prepaid on seven gal. or more. Every gal. guaranteed to cover 250 to 300 sq. ft. two coats. Our prices not increased in spite of big advances in raw materials. Evercote paints are guaranteed to please you or new paint free. Don't buy paint for any purpose till you write postal and get our book that saves you 50 to 50 per cent. Just say, "Send Paint Book."

Charles William Stores 5325 Stores Bldg. New York

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Every country home should have a good water supply system. It provides comfort, affords fire protection, and is useful in many ways. We have filled nearly 15,000 orders for tanks, towers, and water supply systems of all kinds and for all purposes. We can furnish you one to meet your individual requirements—ready to install. Your plumber or any good mechanic can do the work.

Complete Systems for as little as \$39

We install all kinds of water systems, from those used on great country estates, or by railroads, municipalities and factories, to the pneumatic Simplex System which we furnish complete at \$39 for country homes.

4 H. P. Simplar Gasoline Engine \$64

A splendid hopper cooled engine for general use, or in connection with water systems. 6 H. P. size only \$94.

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274 Plymouth Street Brooklyn, N. Y.

The Oldest Ready Mixed Paint House in America Estab. 1842.

To Send Larger Packages

Congress Debates the 100-Pound Weight Limit for Parcel Post

By JUDSON C. WELLIVER



WASHINGTON, D. C.

March 27, 1916.

PROBABLY the biggest thing the National Government has done for the farmer since the establishment of the rural mail delivery was the creation of the parcel post.

It isn't necessary here to recall what the parcel post means already, nor to recount what it will come to mean when the people in city and country realize its possibilities and begin to utilize them to the utmost.

We have heard and read enough about these things. There is no difference of opinion concerning them. It is quite unnecessary to tell people how much the parcel post means to them, especially to the farmers. They know in part from using it, and they appreciate the possibilities of its future development.

But a determined effort is afoot to strike down the parcel post in its early stages of growth, by hamstringing it with regulations and restrictions. The whole country, especially the rural community, needs to understand and to take measures to save this splendid facility.

Let me start at the beginning and try to explain exactly what is going on. The parcel-post legislation provides that the Interstate Commerce Commission shall, on petition of the Postmaster-General, determine rates, conditions, regulations, weights of parcels, etc., for the parcel-post service. That is, the Interstate Commission is vested with authority to fix rates and conditions of transportation for the railroads and express companies, and in these cases anybody may appeal to it to exercise its authority. In the case of the parcel post it has the like authority to determine, but only the Postmaster-General may initiate a proceeding.

If we regard transportation as a whole, we will see how this affects the parcel post. The railroads are the wholesale transportation dealers; the express and parcel post are retailers. The parcel post is the only medium through which access may be had to a million miles of country roads over which rural mails are delivered. Neither railroads nor express companies can reach these. To make conditions, then, which shall unreasonably restrict the parcel post is to place limitations on the transportation system covering this million miles of country roads.

Now follow the thing along. The present parcel-post rule limits the weight of a parcel handled by post to 50 pounds. That is the maximum that Uncle Sam will handle. However, if the Postmaster-General wanted to increase the maximum to 100 pounds, he could, as the law now stands, apply to the Interstate Commission for authority; and, if it permitted, there would be nothing in the law to prevent.

The present Postmaster-General does want to increase the weight limit just as soon as possible. Everybody knows he does, because he has repeatedly said so. He has been anxious to do this just as soon as experiments in handling smaller parcels should give necessary information as to cost, methods, necessary facilities, and the like. And the time is at hand when the increase of weight limit would, unless prevented, take place.

Wants the Increase Soon

Let me make plain just why there is especial need to raise the weight limit to 100 pounds. Railroad rates are figured by hundredweights. One hundred pounds is the smallest unit. If you ship by railroad a fraction of 100 pounds, you pay for this minimum unit anyhow. All rates are made and quoted in hundredweights.

On the other hand, as matters now stand, the mails handle parcels only up to 50 pounds. There is thus left a hiatus between 50 pounds and 100 pounds, unprovided for in the rates of either railroads or express companies.

It isn't difficult to guess who gets the 50-to-100 pound business. It is neatly set aside and assigned to the express companies. Naturally, they want to keep it.

But Postmaster-General Burleson has

been cost-keeping on parcel post, and the Government now knows that it is able to handle parcels cheaper than the express companies can do it. Congressman David J. Lewis of Maryland, "Father of the Parcel Post," has given me detailed figures from actual experience and investigations which prove this beyond doubt. Mr. Lewis is one of the greatest transportation statisticians in the world; he has used his calculations in the most public ways, and they have never been disputed.

The Post-Office Department knows that, broadly speaking, the bigger the volume of business the less the proportionate cost of doing it. So it wants, as soon as possible, to get into this rich 50-to-100-pound field.

Express Lobby at Work

But just as it is getting around to make the move, along comes a joker to prevent. During the consideration of the post-office appropriation bill in the House, an amendment was offered by Congressman Madden of Illinois in the form of a proviso. It declares that no parcel weighing over 50 pounds shall be handled by post until specific authorization of law shall have been obtained.

That is, before the weight limit can be raised from 50 to 100 pounds, or to any other figure, it would be necessary, not to get the consent of the Interstate Commerce Commission, but of Congress. It would make expansion of the parcel post utterly impossible.

Getting Congress to pass a law is about as easy as suspending the force of gravitation. Tens of thousands of bills are presented in Congress every session; a few hundred pass, most of them being pension and like acts; very few pass after contests.

Congress having once specifically fixed 50 pounds as a maximum weight would have created a strong presumption that it meant to leave the maximum right there.

Despite the protest of Mr. Lewis and other friends of the parcel post, the House adopted this Madden amendment, and the bill has gone to the Senate carrying it, and has been referred to the Committee on Post-Offices. A hard fight is being made in that committee to get the amendment killed, for the friends of parcel post are now thoroughly aroused, and determined not to have the system killed in its very infancy, just as it has demonstrated what an immense utility it can be to the country.

Nobody would be so hard hit as the farmer by this limitation on weights. In the first place, it must be remembered that the parcel posts of other countries all go up to 100 pounds or higher, thus:

Germany, 110; Belgium, 132; Russia, 120; Switzerland, 110; Hungary, 110; Romania, 110; Luxembourg, 110; Sweden, 110; Norway, 110.

Why should the United States limit weight to 50 pounds while all Europe carries more than twice that much? The experience of Europe shows the usefulness of the larger parcel, for this is the one that brings the country's produce to the town dweller, as we want to do here.

We hear a lot about trafficking from farm to table by parcel post, but the fact is that a crate of eggs weighs over 50 pounds; so does a bushel of potatoes. Either of these units would be barred until the limit could pass 50 pounds. The truth is that unless parcels up to 100 pounds are permitted the boasted contribution of parcel post to keeping down the cost of living will be a good deal of a fake.

It is absolutely inexcusable, in the face of the great success of parcel post thus far, and in the face of the experience of other nations with the larger weights, thus to shackle the development of the

system. The Post-Office Department has emitted a roar of protest that has been heard all over the halls of Congress. The National Grange, the American Federation of Labor, the Farmers' Union, and all manner of like organizations have responded, denouncing the Madden proviso.

The Senate post-office committee includes a number of

men who have indicated a proper appreciation of the situation. It held a hearing on the subject at which representatives of these organizations presented their demands for the fullest and freest development of the parcel post. Mr. Lewis gave a most impressive statement of the case, in which he showed that it is absolutely necessary to allow some administrative authority to fix the conditions, weights, rates, etc. Congress might as well attempt to make all the railroad rates of the country, without any railroad experience at all, as to try to determine exactly how the parcel post should be conducted, what it should charge, etc.

In the very beginning of the parcel post, Congress fixed rates in the law, but it also put in a provision that these rates might be changed by the administrators of the law if experience proved it necessary. Experience promptly proved the necessity. For example, the original rate named in the law for a 10-pound parcel, Baltimore to New York, was 6 cents for the first pound and 4 cents for each additional pound; total, 42 cents.

That was the rate that Congressional wisdom, without any experience, decided upon. What happened? The express companies made a lower rate and got the business. It was found, after the parcel post had been in operation a little time, that the 42-cent rate was just about four times the cost of the service. So the administrative authority—the Postmaster-General, with the approval of the Interstate Commerce Commission—reduced the rate from 42 to 14 cents, or just one third. At this figure, even, the Government is making a snug profit on such parcels.

Another piece of Congressional regulation enacted in the original law was the requirement for a distinctive parcel-post stamp. You couldn't use ordinary stamps. If you wanted to send a parcel you could go to the nearest post-office and buy the parcel-post stamps for it; which you mostly didn't do, because it was too much trouble.

Administrative authority promptly stepped in and remedied the defect. The Postmaster-General asked the Interstate Commission's permission to use ordinary stamps. The permission was granted, and a leading nuisance of the system was abolished.

Write to These Senators

Experience has shown that under present rates the Government earns a profit on all weights of parcels except the smallest, the one-ounce package. The revenue for that parcel is only one cent, and there is probably a slight loss in handling it. But as soon as you get up to the parcel that costs 2 cents or more, there is profit; and the profit grows as the weight gets higher. The parcel-post's statistics have been kept with the greatest care. Mr. Lewis proved that last year the post handled for less than 5 cents a package that cost the express companies an average of 24 cents. When he made this statement there was a prompt protest from Mr. Madden:

"Does the gentleman mean," demanded Mr. Madden, "that the Government, paying twice the wages to its employees that are paid by the express companies, can do for 5 cents what it costs the express companies 24 cents to do?"

Mr. Lewis replied that it did exactly that; and then he showed how, amid the applause of the House.

It is too early to tell what will become of the Madden amendment. A number of members of the Senate committee are fighting hard to kill it, especially Senators Swanson, Townsend, Vardaman, Martine, and Beckham. A letter to any one of these, protesting against adoption of the Madden proviso, will help do the business.

Motor Power



To Avoid Skidding

WHEN you feel your car skidding, the most natural thing to do is to slam on the brakes, and that is what most drivers do. But that is the thing above all others that should not be done unless you are sure the car is going to upset. To avoid skidding:

Drive slowly on slippery roads, also around corners and bends, and on roads having a high crown. Use rough-tread tires, or tire chains. Don't set the brake, but steer slightly in the direction you are skidding. Steering in that direction will keep the car from turning around, and if the back wheels are still turning they usually get enough hold on the road to drive the car forward, and you will be safely on your way.

Get the Binder Ready

By Carlton Fisher

NOW is a good time to look over the harvesting machinery.

The binder should be examined in all its wearing parts—crank pin, bushing, packers, knotters, and the like—for wear, and they should be wiped clean and oiled.

Send away and get new all parts which need replacing.

Don't put heavy grease on the bill hook or knotters of the binder. Use a light, clean oil.

Examine the binder canvases for wear, consider whether you will need a binder engine, and plan to lay in your supply of twine.

Chores by Electricity

By A. F. Ames

THE Minidoka irrigation district in southern Idaho is a government project about eight years old. While we do not have all the advantages of an older community, we have some not enjoyed by all. I wish to speak only of electricity.

The Government has built and maintains several pumping stations, all operated by electricity generated at the central power house at the dam. This power is carried on high-tension lines at high voltage to the substations where the voltage is reduced to 2,200 volts.

Arrangements have been made whereby any person or association can buy energy at these substations, thereby bringing into the Government a continual revenue, as otherwise the plant would be idle except during the irrigation season.

Many farmers and others have availed themselves of this opportunity, and have formed associations to build distributing lines.

We now use electricity for almost every conceivable purpose. We have a 1/10 horsepower motor which operates at a cost of about one cent per hour. It runs the washing machine, wringer, churn, and small cream separator. We have a small electric stove for cooking and baking. A baking temperature can be attained in from three to five minutes, at a cost of about five cents per hour. An electric flat iron which we use is also a great convenience.

We also use an electric pad to make hot applications in case of sickness, and even to warm up the little ones' feet on cold nights. It can be put in bed with

them with perfect safety. A great many electric heaters are also used for dwellings, especially bedrooms.

We use a one-horsepower motor which runs at a cost of about five cents per hour, and pumps water for all the stock, and we soon expect to use it to furnish water under pressure for the dwelling. It will also run a small feed mill, hay cutter, root cutter, and bone mill.

The house, hay barn, cattle barn, and sheep barn are all lighted by electricity. We have a large light in the center of the yards, high on a pole, which lights the yards so we can do chores as well by night as day. If I hear a disturbance in the yards at night I can step to the door and turn on the light and see what is going on, instead of having to dress and light a lantern and go out and poke around to locate the trouble.

Excels at Short Jobs

The beauty of electrical power is that it can be used so economically in small units on short jobs where no other power could be used except human energy.

I believe there are many farm communities where electricity could be used and return more profit and pleasure for the money invested than most anything else of which I know.

I am a small farmer owning only 80 acres of land, valued at \$8,000, with about \$3,000 working capital. I am a cripple; haven't done a day's work for four years. I operate entirely by hired help. I have installed these electrical appliances at a cost of about \$250 (not including the water pressure system for house use), to make me less dependent on hired help, and I have found it very profitable.

Machine to Kill Sprouts

AN INGENIOUS machine to kill sprouts on newly cleared land has been invented by a Missouri farmer and mechanic. The plan is to whip the sprouts to death with chains, and the inventor claims that it will work over stumps a foot high and a foot across. The machine is slightly larger than a hay tedder, which it slightly resembles, and is drawn by two horses. One of the wheels is geared to a drum, and to this drum, which revolves at high speed, are attached in two rows twenty pieces of chain, each having a V-shaped piece of metal at the end.

The machinery is covered with a shield to protect the operator from sprouts and dirt torn up by the chains. Killing from six to eight acres of sprouts is rated as a day's work for this implement.

Ingenious Stump Saw

By H. J. Krier

THIS machine was expressly designed for clearing farms of stumps. It consists of a narrow band saw, operating continuously over two large light wheels, sawing the stump off at the ground or a few inches below. Stumps having a diameter of 40 inches may be sawed in three minutes.

This ingenious machine was invented by an Arkansas merchant who dabbles in farming as a side line. He decided to get away from cotton-planting and raise wheat, but his land was so full of stumps that it was impossible to harvest the crop. His machine now saws off the stumps level with the ground, so that the binders pass over them.

In cultivating cornfields or in drilling grain, the team passes over the stump butt, and the blades are lifted, instead of making a wide detour as formerly. There are no great holes to fill, and it is not long before the top of the stump is so rotted that the plow cuts through it.

The stump saw is constructed on a low truck, so that a team can easily move it from place to place. The saw is operated by a small gasoline engine.

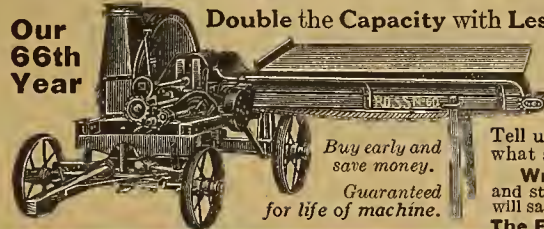


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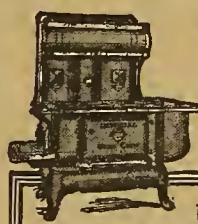


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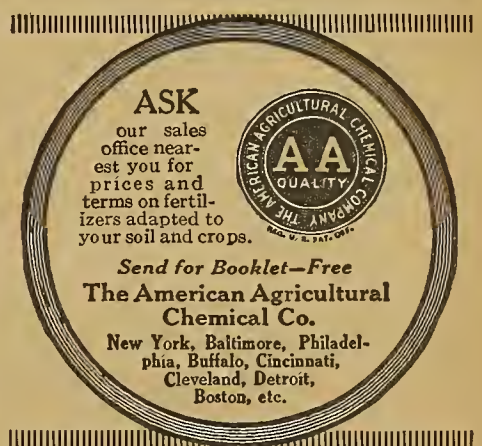
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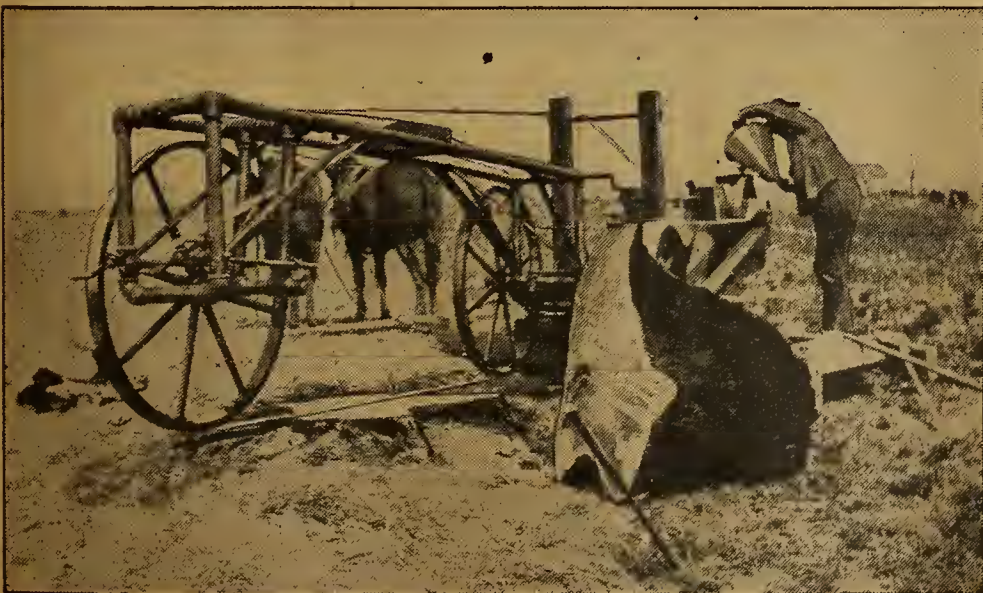
Turn Stump Land Into Money

Don't let those stumps rob you of crop-money that belongs to you. Break them into firewood with

Atlas Farm Powder
THE SAFEST EXPLOSIVE
The Original Farm Powder

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This saw cuts off stumps even with the ground, and the stump finally rots out enough to plow through



Wanted 50,000 Farm Hands

of experience at once on the farms of
Western Canada

To replace the young farmers who have enlisted for the war. Good wages and full season's work assured.

There is no danger or possibility of Conscription in Canada

References required from all applicants. For special railway rates and other information apply to

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Doesn't it help the digestion wonderfully? I get rid of that stuffy feeling, after a hearty meal, in great shape. It's a blessing in the barn and in the fields too, when a fellow's thirsty and wants something to sweeten his mouth—something to **chew on**. It keeps the teeth clean, too."

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This No. 16 Planet Jr Single Wheel Hoe, Cultivator, Rake and Plow is the highest type of single wheel hoe made. Light and durable—can be used by man, woman, or boy. Will do all the cultivation in your garden in the easiest, quickest and best way. Strong indestructible steel frame. High, easy-running steel wheel. Costs little, and lasts a lifetime. 14 other styles of wheel hoes—various prices.

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If you are a farmer, trucker, orchardist, or suburbanite with a kitchen-garden, there is a Planet Jr. made for your special need. You can't afford to work without a Planet Jr.

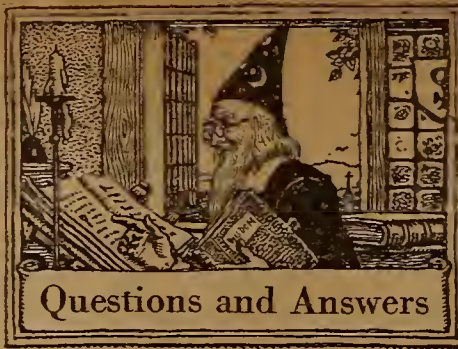
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Operates on an entirely new principle. The short-stroke plunger produces a long, loud note. The slightest touch gets immediate response—never catches nor sticks. Klaxon quality is built into it; Klaxon reputation is behind it. Other Klaxons up to \$20—All dealers.

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Questions and Answers

The Last Stump

A reader who does not give his address asks, "How will you pull the last stump after you have cleared up a field with a stump puller?"

WE HAVE a suspicion that this man is a joker. However, the problem is not without a solution.

Some land clearers drive a post into the ground at an angle of 45 degrees. This will usually offer enough resistance to pull up a fairly good-sized stump. Where the stump is a big one, a charge of dynamite will break it up enough so that you can pull it by the post method. Another good way is to plant a "dead man" which will give sufficient anchorage to remove a good-sized stump. Still another good plan is so to manage the stump-pulling operations that in pulling the last stump you can anchor the puller to a large standing tree that has been left for shade. Has anyone else a better plan?

A Lump on the Jaw

For six months my best cow has had what I have considered lump jaw. I have had it lanced twice, and have tried poultices a number of times. The right side of her head is badly swollen. She seems to be in perfect health except for this thing.

E. A., New Jersey.

ISOLATE the cow at once and have her tested with tuberculin. Meanwhile do not use the milk. If the cow proves to be free of tuberculosis, then the lump is probably what you think it is. Lumpy jaw can be cured. One way, if glands are not involved, is to cut out the lump. If this cannot be done, each lump or tumor should be opened deeply and caustics inserted. Corrosive sublimate, arsenous acid, or copper sulphate may be used. The cow should have potassium iodide, in one dram doses, twice daily in water for several periods of ten days, with ten-day intervals between periods of treatment. This medicine should not be given to a pregnant cow. A good veterinarian should treat cases of this kind.

Mules Won't Back Up

Our mules won't back up. What can be done? We have two mule colts that are causing us trouble. They are as good as they can be except for this one fault.

R. W. D., Colorado.

MULES are seldom as easily handled as horses. In the stall the best opportunity is offered to train the animal to back. After putting the bridle on the animal, exert a steady pressure on the reins by grasping them just back of the bit. Continue this until the animal consents to step back to ease the annoyance. When the colt steps back, the command "Back!" should be given with firmness. As soon as the mule has yielded remove the pressure. Continue with these lessons at five or ten minute intervals. Between times give him something good to eat. He will take this as "pay" for what he is doing. These lessons should be kept up for several days. Then try him out on the barn floor, where he will have a little load to handle. When the lessons are being applied in the field, use care that the load is light. In fact, keep the load a light one for a month or two.

Good Farming Pays

I am thinking of leaving the State of Washington and devoting myself to livestock—raising beef and hogs—somewhere in the East. Being accustomed to a milder climate than my old home in New York, it seems quite possible that it would be better to locate in Virginia, Maryland, or Delaware. Then there are the social conditions to be thought of. Where would you locate under these conditions?

R. S. D., Washington.

WE SHOULD go on a personal hunt for the right sort of location. There are people in the Middle Atlantic States who are making money on beef and hogs. Those portions of the South which have been freed from the cattle tick seem to offer good opportunities for cattle production, and hogs are grown on forage crops in the South by the best farmers as cheaply as they are grown anywhere.

The man going into any of these States will find the county agent a good man to work with. Many of them are very practical men, all of them are well grounded in agricultural education or experience, or both, and they are in the business of working out the local problems in farming. Find the agricultural agent of the county and work in close co-operation with him.

Mr. T. O. Sandy, state agent for Virginia in farmers' co-operative demonstration work, has reported results in raising hogs on his own farm by a pasture system under which he has made a net profit of \$509.92 on 32 acres, plus the improvement to his soil. The gross returns were \$1,081.52, and the man doing his own work would have received a labor income of \$571.12. This is no bonanza, but it is a modest success and shows what can be done. It takes mighty good farming, however,—but no other kind of farming pays, anyhow.

Go to the Farm Slowly

I am a machinist getting \$18 a week; am thirty-three years old and married. Was raised in a country town and have worked on farms, and am not entirely ignorant of farm work. Have tried to rent a few acres and still hold my job in the factory, but cannot find such a place. Have thought seriously of going down to Tennessee to farm. What do you think of it?

J. A. D., Ohio.

IF YOU can get a job at your trade in some Tennessee city or town, you might find the chance of renting a few acres of land and thus step gradually from city to farm. To give up your job and emigrate to any strange place expecting to farm would be rather risky.

You should study good books on farming and make yourself familiar with the agricultural bulletins treating on the subjects in which you feel an interest. Very few farms are provided with accommodations for married men working as farm hands. This is one of the defects in our American farming. In general, we advise the man who has a job in the city to be very slow about giving it up.

Milking-Machine Problem

Can a ten-year-old child wash the parts of a milking machine? Also, does the work of keeping the machine clean take more or less time than hand milking?

E. C. S., Maryland.

THE average ten-year-old child could not be depended on to keep a milking machine in good condition. Caring for a milking machine is work for a grown-up, though a child might be of assistance. The saving of time by machine milking depends on the size of the herd. With only a few cows a milking machine would mean more work. With a large herd machine milking would be less work. The dividing line is somewhere between ten and eighteen cows.

Colored Cement Strong

Is it possible to color cement without injuring its strength?

A. B. S., Pennsylvania.

VARIOUS cement colors are on the market and, ordinarily used, do not noticeably weaken cement. There is no objection regarding these factors for walks cellar floors, and many other similar uses.

The Bottle Lamb

The mother to a lamb I own was just killed. I am rather inexperienced in working with sheep, and I am at a loss to know what can be fed the little lamb. The lamb is only four days old, and so I shall appreciate your immediate help.

H. S. Dcer, Pennsylvania.

THE motherless lamb may be fed whole milk from a cow that is recently fresh. Feed the milk by means of the ordinary nursing nipple and bottle. Feed the lamb a small quantity six or eight times a day the first two or three weeks. After that the number of feeds can be reduced gradually to three or four, and the quantity of milk fed at each meal increased gradually. When the lamb is about four weeks old give it a little mixed grain—bran, middlings, ground oats, fed dry. Also a little bright clover hay can be supplied until it can get fresh grass. If the cow's milk causes constipation, put a spoonful of cane molasses in the milk occasionally.

Thin-Shelled Eggs

Is there any objection to setting thin-shelled eggs?

C. O., Ohio.

YES. Eggs that have soft shells or very thin shells do not hatch well because of the excessive evaporation.

E.W.

Good-Health Talks

Suggested by Questions from Our Readers

By DAVID E. SPAHR, M. D.

A LITTLE girl five years old, living in Alabama, and two sisters, living in Wisconsin, report severe cases of pinworms. Such cases are quickly handled if tablets of calomel and santalin, one-tenth grain each, are administered. Take one tablet every half-hour for ten hours, each day for two days, followed by a dose of oil or salts the next morning after breakfast. For children, doses should be placed at greater intervals, but the treatment is practically the same for children and adults. With adults another aid in ridding the system of the trouble is an injection twice daily of a strong decoction of quassia. If more convenient, an infusion of garlic may be used, but the treatment must be pursued until there is relief. Once a week the tablets may be repeated, in each case following the tablets with a dose of oil or salts.



ders of the stomach. All your alarming symptoms, such as blindness and loss of taste for sweet things, constitute a series of nervous phenomena that accompany the interference of nerves of taste and vision. They generally occur in persons who are nervous and neurasthenic. I do not think your symptoms are alarming. However, you should have your heart and urine examined. You can take a teaspoonful of elixir of chionanthus compound before meals, and ten drops of hydrochloric acid, diluted in a glass of water, after meals.

Nervous Dyspepsia

I am losing flesh and am in a run-down condition—pale and nervous. Have suffered for the last two months with indigestion. Suffer, soon after eating, with sick nervous spells, and just tremble all over. I get cold and my face and eyes turn yellow. Also have weak spells at my heart. Mrs. L. K., Ohio.

YOUR general condition is below par. Such cases are usually accompanied by menstrual disorders also, but you do not mention them. There is certainly a cause for your nervous dyspepsia and your run-down condition. Such cases as yours tax the ingenuity and skill of the physician to the fullest extent. You need sound medical advice, close attention as well as tonics, nerve sedatives and correctives. Your physician can give you these better than anyone else.

Numbness of Hands

I am a married woman forty-nine years old, and for four years have been troubled with numbness of the fingers and hands at night. Have a weak heart and poor circulation. My case is chronic; have been troubled for ten years or more. I take epsom salts about three times a week, I also have indigestion, and bloat a great deal. Mrs. C. E. W., Montana.

YOUR condition might possibly be due to your passing through the menopause period. You need a good general tonic. Take: Tinc. chloride iron, 3 fluid drams; dilute phosphoric acid, ½ fluid ounce; syrup of lemons, 3 fluid ounces. Mix. Dose, a dessertspoonful three times daily.

Abnormal Appetite

I have a good appetite, eat well, and am hungry right away afterward. My desire for food is greater than my will power, and the consequence is a "gassy" stomach and a headache. Mrs. M., Texas.

YOUR food is not being assimilated, consequently you are hungry with a full stomach. Eat slowly of a less quantity, and take from ten to fifteen drops of dilute hydrochloric acid in a glass of water after meals.

Blackheads

My daughter is very much worried with blackheads. Can you recommend some lotion? Mrs. H. W. A., Michigan.

PUNCTURE them and wash the face in hot water and soap, and apply the following ointment: Resorcin, 1 dram; glycerin, ss. dram; aq. aurant flav., 4 drams; alcoholis, ad. 1 ounce. Mix and apply to the face daily.

Chronic Bronchitis

I am troubled with a cough and a cold, and spit up a nasty, yellow, brown mucus. It is very tenacious, and the spells of coughing are dreadful. I have recurrences of these attacks every two or three months. I cough until I get a pain in my side. I have had my tonsils removed, but still had adenoids, and my doctor thinks now that I have gall stones. When I yawn, a fetid odor comes through my nose. Mrs. S. K. W., Minnesota.

YOUR cough may be due to dry catarrh, which causes that bad odor to come through your nose when you yawn. It might come from heart disease, although you did not mention your heart or heart disease and emphysema (dilated air cells). In some cases of chronic bronchitis, with tenacious mucus and hard, harsh, distressing cough, nothing acts as well as the following: Iodide of potash, 1 dram; syrup trifolium compound, 4 ounces. Mix, and take a teaspoonful every three hours.



Partial Interior View of One of the Hundreds of Big Storage Warehouses in which the Choicest Burley Leaf is Aged in Wood Three to Five Years for Tuxedo Tobacco. The Large Central Inset Shows a Hogshead Opened.

All Smoking Tobaccos Are Aged

Have to be to make them smokable. Tobacco in its natural state is raw and harsh. Ageing makes it mellow, milder.

The leaf for some tobaccos is aged for only one or two years. That

for Tuxedo is aged in wooden hogsheads for three to five years—until it is as nearly perfect as nature can make it.

Most manufacturers simply age the leaf and let it go at that. But—

Tuxedo Is More Than Aged

After nature has done all it can to mellow the leaf, then the original "Tuxedo Process" is applied.

This famous process—a doctor's discovery—takes out all the bite left by nature. Prevents irritation of mouth and throat. Makes Tuxedo the mildest, most comfortable smoke possible to

produce. Enables men to enjoy a pipe who formerly could not do so.

The "Tuxedo Process" has many imitators. Millions of dollars have been spent trying to invent a "just as good" process. But it still remains the great original method for making tobacco absolutely biteless and non-irritating.

Tuxedo

The Perfect Pipe Tobacco

Get a tin of Tuxedo. Try it for a week. Note how sweet and fragrant it is and how mild! You can smoke it all day and have a sound tongue and a perfectly comfortable throat at the end. A week's trial is bound to make you a permanent smoker of Tuxedo.

YOU CAN BUY TUXEDO EVERYWHERE

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In Tin Humidors, 40c and 80c. In Glass Humidors, 50c and 90c

THE AMERICAN TOBACCO COMPANY



Bronchorhea

Mrs. R. B. of Pennsylvania had bronchial pneumonia about one year ago, and since then she has violent paroxysms of coughing once or twice a day and night. She is not losing weight; her lungs have been pronounced good.

YOUR bronchial pneumonia has left you with dilated bronchial tubes, which form a pocket where mucus can accumulate until nature rebels and expels the accumulated mucus by coughing and vomiting. Then you have relief until it reaccumulates. You should get a good strong atomizer, and use a spray of oil of sweet almonds, one ounce, and oil of cajuput, two drams. Mix and use as a spray for nose and throat. Use this three times daily and keep the mucus thrown off as fast as it accumulates. Live as much as possible outdoors, or preferably take a trip to some warm climate, or to the seashore.

Chronic Malaria

Ten years ago I contracted dumb ague in Mississippi, and ever since I have suffered with low spirits, constipation, and indigestion. My bowels get quite sore at times, and physics hurt. At times I have a dropsical swelling of the abdomen. C. G. G., Illinois.

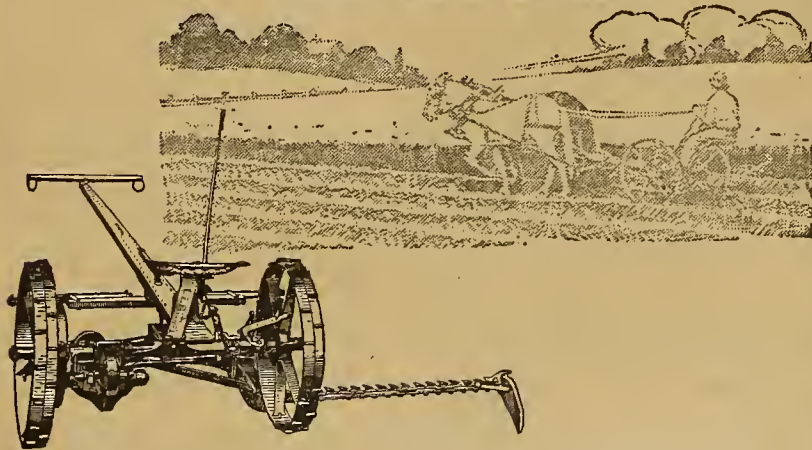
THAT abdominal dropsical swelling means heart or kidney trouble. You do not mention jaundice as a prominent symptom, or perhaps the liver is not at fault. Also tuberculosis of the bowels must be considered. It would require a close personal examination to make a proper diagnosis.

Can't Taste Sweets

I have had a disorder of the stomach for some time, which is accompanied by some very peculiar disturbances. Besides the usual pain and soreness and the nervousness, I have glimmerings before my eyes—sometimes amounting to blindness—followed by headache and a sense of fullness about the temples. I have lost my sense of taste for sweets. E. D. D. M., California.

IN THIS case we have exemplified some of the numerous and complex symptoms that attend upon just simple disor-

International Harvester Mowers and Rakes



HAYING weather is not always perfect, you know. It takes a season when the fields and meadows are in the worst shape for cutting to bring out the dependable qualities of International Harvester mowers. When the stand is heavy, lodged, and tangled, or when it is exceptionally light and you need all the hay you can cut from it—those are the times when a farmer appreciates the ability of his mower to stand up under heavy work, or to cut so closely that scarcely a blade is wasted.

After the mowing, the raking. That, too, can be wasteful, but it won't be the fault of the rake if it's an International Harvester rake, bearing any one of the famous IHC trade names.

Choose your mowers and rakes from the IHC line. Do away with any chance for trouble. You can always get repairs promptly any day you happen to need them. See a local dealer who handles the Champion, Deering, McCormick, Milwaukee, Osborne or Plano machines, and buy your mower and rake from him.

International Harvester Company of America

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CHICAGO

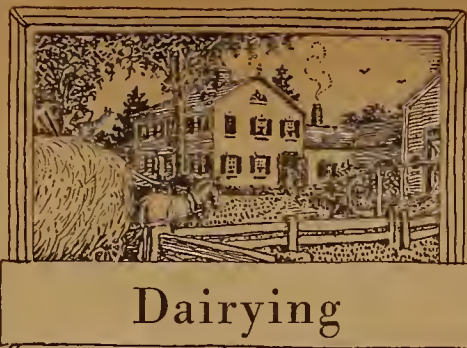
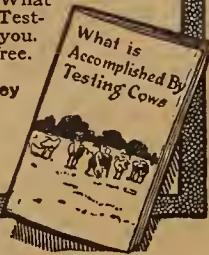
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Testing your cows tells whether they are earning money for you. By the Register of Merit work you can now build up your herd from animals of known production. Science is driving guesswork out of the dairy business. Government records show that the average net profit per cow was increased 129% in eight years by testing. Selection based upon actual dairy merit will produce like results in your herd. Our booklet, "What is Accomplished by Testing Cows," will help you. Send for it now. It's free.

The American Jersey Cattle Club
363 West 23rd Street
New York City



Dairying

Dairyman's Beef Supply

By H. W. Weaver

BREEDERS of dairy cattle often complain that they cannot produce good beef for their own use from the cull cows or inferior bulls of their dairy. We have been in the dairy business for a good many years, raising Jerseys and Ayrshire cows for butter and cheese production. Nearly every fall we feed up a beef, and sometimes more than one.

A heifer that has lost a quarter of her udder, or is found to be a boarder instead of a producer, or an older cow which for some reason has ceased to be profitable, or a yearling bull, is set aside for beef.

Our method of feeding is as follows: Beginning about November 1st the animal is given a varied ration consisting of clover hay, corn fodder or silage, pumpkins if we have them, apples, small potatoes, cabbage leaves, and usually soft corn on the cob as long as it lasts. The animal receives as a finishing ration a mixture of two parts of oats and one part of corn, by weight, ground together. The feeding of grain is begun gradually, and the limit of quantity per day is determined by keeping a close watch to see that all feed is properly digested.

An animal fattened quickly with a varied ration containing plenty of succulent feed will invariably produce a very good quality of meat. Yearling bulls are developed into excellent beef animals by this method of feeding. We use the best part of the hind quarters for drying. This makes excellent summer meat, and is much cheaper than buying it at the market for 50 cents a pound. We also can a large portion of the meat, and make corn beef of some.

Hard Milking Overcome

By Frank J. Hockeborn

I HAVE a cow that used to milk very hard, giving only a thin stream of milk. But now I have a very simple remedy for that. I simply wash her teats and lower part of the udder with water, dry the parts, and milk her right off. She milks as easy as any cow I have.

Of course I don't know whether it would work on every hard milker, but it is worth trying, and will clean the teats and udder if nothing else. I have tried both warm and cold water, but it doesn't seem to make any difference.

Folding Silo Roofs

By B. D. Stockwell

THE amount of silage a silo will hold depends largely on the kind of roof it has. Even well-tramped silage will settle several feet in a very short time, and unless the silo is refilled it is not holding its full capacity.

One Ohio dairyman having two silos has decided not to put any roof at all on them. He fills them full to the top and then heaps up the silage four or five feet more, so that even when it settles the silo will be full, or nearly so.

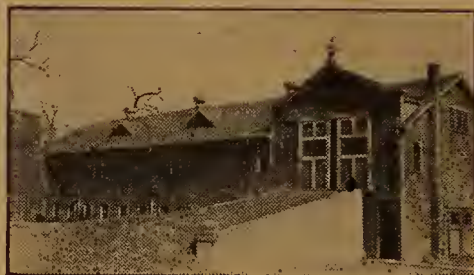
"This gives me the total capacity of my silo," he says, "and while some snow gets in the silo in winter it doesn't bother much."

"Another advantage of not having a roof is the greater purity of the air in the silo, especially when filling."

A double-pitched roof, the lower part of which is nearly straight, gives nearly the same advantage as far as heaping up the silage is concerned. But perhaps the most ingenious method of all is the folding silo roof made up of about eight triangular pieces which can be opened up from the center out. On a silo 30 feet high such a roof adds nearly one fourth to the previous tonnage. However, a roof of this construction is somewhat more expensive than a stationary roof, costing about \$50 for a size to fit a silo 12 feet in diameter.

Old Barn Improved

THE driveway walled with concrete makes this dairy barn not only more attractive than it otherwise would be, but greatly adds to its convenience by the easy access to the second floor.



Certified milk is now produced in this remodeled barn

The cows are kept below; hay, grain, and farm implements are stored above. This barn, though built many years ago, has modern equipment, including cement driveway between the stalls, iron stanchions, box stalls, plenty of light and ventilation.

The Sire Leads the Way

HERE is a little incident which occurred at a farmers' institute some years ago, where Dean W. A. Henry of the Wisconsin Experiment Station was the principal speaker. The value of grading up a dairy herd was explained, and records of various herds showed conclusively that pure-bred cows and good-grade cows were the best producers.

"Professor," spoke up a young man, "I have a grade bull, half Jersey and half nondescript. What would you advise me to do?"

"Drive him off the farm with a club," was the immediate reply.

At first the young man thought he was joking, but Mr. Henry meant it.

Just why a grade cow is desirable and a grade bull is worthless from a breeding standpoint is still puzzling to some. This is the explanation: If you have a pure-bred bull and common cow, the first generation will be half pure-bred; the second will be three fourths pure, and so on until for utility purposes you have practically a pure-bred herd, all from the use of one or more pure-bred sires of the same breed.

This is perhaps the least expensive manner of improving a dairy herd. But if you start with a grade bull you will never have a pure-bred herd.

If you start with a pure-bred sire and a pure-bred cow of the same breed, you at once begin to lay the foundation for a valuable herd of pure-bred cattle. The future of such a herd depends entirely on the owner's judgment in the selection of foundation stock, and on his skill in breeding to fix strong points and eliminate weak ones.

Calf-Meal Conclusions

J. B. LINDSEY, a Massachusetts dairy investigator, has made a careful study of substitutes for milk in rearing dairy calves. The experiments include trials with various commercial calf meals, and with meals mixed at the Massachusetts Experiment Station. Here are the results and comments:

Commercial calf meals cost from about 3.2 to 4 cents per pound.

Home-mixed calf meals cost from 3 to 3.7 cents per pound.

Considering the trouble and labor of mixing, the cost is about the same.

Calf meals may be purchased or prepared that will take the place of a considerable amount of whole or skim milk.

During the first four months of a calf's life calf-meals should be supplemented with from three to five quarts of skim milk daily.

Calves differ somewhat in their ability to thrive on milk substitutes. Holstein and Ayrshire calves usually do somewhat better than Guernseys and Jerseys.

The average cost of gains made by calves fed on calf meals and some milk is about 9 cents per pound.

Calf Cholera

WHITE SCOURS, or calf cholera, usually appears two or three days after the calf is dropped. The disease is usually contracted by infection through the navel cord. Prevention is better than a cure.

The symptoms are failure to eat, lying down much of the time, dull eyes, and peculiar pasty white feces. A calf thus affected dies within twenty-four hours.

The cow, during the period of calving, should be kept in a clean, freshly bedded stall or enclosure. As soon as the calf is born disinfect its navel cord with a mixture of one part carbolic acid to ten parts of water, also soak a string in the carbolic-acid solution, and tie it firmly around the navel cord two or three inches from the calf's body.

Give the calves showing any appearance of white scours two tablespoonfuls of castor oil every hour until their condition improves, also a teaspoonful of equal parts of pepsin and bismuth every hour day and night.

If the calves are given one or two raw eggs three times a day, and not given any milk, they recover more rapidly. When they have recovered enough to feel hungry give a little gruel made by mixing one quart of oatmeal in two quarts of water, boil two hours, strain through a potato sieve, salt slightly, and add two tablespoonfuls of lime water.

The difference in production between common cows and any good pure-bred cow is much greater than the difference between breeds.

A Milch-Goat Record

By C. O. Reeder

THE popularity of milch goats in the West has led the California Experiment Station to conduct an official test of their milk-producing capacities. A two-year-old pure Toggenburg produced in one year 2,158 pounds of milk and 72.8 pounds of butterfat. This is about one sixth the production of a first-class cow, and is more than twice as much as an ordinary milch goat gives. The cost of feed per pound of milk was about nine tenths that of dairy cows in the station herd.

Ornery-Looking, but—

By A. M. Roberson

FOUR years ago I paid \$35 for an ornery-looking Jersey heifer for a runt calf. Everyone poked fun at me about my sorry-looking cow. I now have two grown cows besides the original heifer, and also one heifer which will freshen in the summer.

I have sold three steer calves at \$20 each at a year old, and have two more calves on hand. The old cow herself will freshen again in three months. That's nine head which we now have or have sold; their total value is \$305. In the meantime we have had abundance of milk and butter except for short periods.

Feed for Breeding Cows

FIFTEEN to twenty pounds of silage a day may be fed to mature breeding cows at the start. This can be increased gradually until they are getting all they will eat. Because there is so little grain in proportion to the roughage in silage, there is little danger of overfeeding.

With access to hay, preferably alfalfa or other legume hay, the cows will eat from 25 to 30 pounds of silage a day. Unless some legume hay is fed, about a pound of either cottonseed meal or oil meal a day should be fed with the silage.

Specify Capewell Nails

when your horses are shod. It pays to insist upon this brand. Make it clear to your shoer that Capewell nails must be used. He can easily get them. On the market 35 years.

They outwear all other nails and hold shoes the best. Not cheapest regardless of quality but best in the world at a fair price.



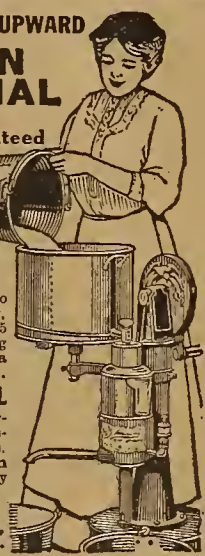
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A SOLID PROPOSITION to send new, well made, easy running, perfect skimming separator for \$15.95 Skims warm or cold milk, making heavy or light cream. Bowl is a sanitary marvel, easily cleaned.

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Gears thoroughly protected. Different from this picture, which illustrates our large capacity machines. Western orders filled from western points. Whether dairy is large or small write for handsome free catalog. Address:

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The selling of separators now revolutionized by this great offer. You can now get the finest made and best designed machine ever built—the new National. No excuse to buy a cheap machine. You can get the new National with the marvelous Vortepoon one-piece skimming device with no actual outlay of money.

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COMPETITORS \$29.80 208 of THEM BEAT

Gets All the Cream All the Time

Makes dairying more profitable. Skims 350 pounds per hour. Many great improvements not found in other separators. Sanitary Bowl. Cleaned in 3 minutes.

Golden Harvest Cream Separator

Fewer working parts. Extremely simple construction. No complicated parts to cause costly repairs. Ball bearing. Long wearing. So light running that child can operate it. Self-oiling—no mussy oil cups to fuss with. An improved separator at an immense saving. 60 Days' Free Trial. 20 Year Guarantee. Get all the facts about this better separator. Learn how it is making and saving money for other farmers. All told in illustrated Dairy Catalog No. M99. Send for your copy today.



Montgomery Ward & Co.

New York Chicago Kansas City Ft. Worth
Portland, Oregon
Write House Most Convenient



This Jersey bull, Julia's Majesty, is an ideal type for grading up a dairy herd. His back is long, barrel large, and withers clean. He is owned by George Batten of New Jersey



Live Stock

What Beef Calves Like

SUCKING their dams until they are six months old, beef calves do very well on a ration of corn and wheat bran in equal parts. During this time the cows should be fed a ration that will stimulate the milk flow. Chopped oats makes a good feed for beef calves until they are several months old.

If the bran and corn or oats are scattered on the bottom of the feed troughs the calves won't gorge themselves until they have indigestion, as they might otherwise.

When Ewes Lamb

By Andrew M. Paterson

WHEN ewes produce their lambs late in the season and on pasture, their care is much simplified. In good weather two or three visits to the pasture each day to see that all is going well is enough. If the weather is stormy, however, the problem is much more complicated. It is necessary to furnish some form of shelter for the ewes and lambs, as exposure to wet, cold winds is sure to cause loss. Where the flock is large, lambing pens should be provided. Temporary pens may be made by dividing part of the shed into pens about six to eight feet square. The ewes should be placed in these pens until the lambs have a good start in life. Another good plan is to encircle the ewe with hurdles. This is done at or after lambing. When managed in this manner the ewe will fret less than if removed to some other pen. This method also results in a great saving of space.

For the first few days after lambing the ewe's feed should receive considerable attention. After the lambs have been delivered, the ewes should be given some water from which the chill has been taken. The same amount of fodder should be fed, but too much grain should be avoided, as it may stimulate the flow of milk and cause trouble. With a gradual increase the ewe may be on full feed in six to eight days, depending upon conditions.

The ewe's udder should be watched very closely, and all wool and dirt should be removed which may hinder the lamb in nursing. In some cases the udder may be more or less inflamed. Where the milk flow is very plentiful the udder should be watched to avoid inflammation and spoiled udder. Where the teats become sore the lambs should be taken away and allowed to suck a few times each day.

The ewes should be separated as soon as possible after lambing, the ewes with single lambs put in one pen and those



Some boys take great delight in helping take care of the lambs

with twins in another, so that the ewes that are doing double work may receive more food and better care.

The care and management of the ewes and lambs from yearling time until the lambs are a few days old is one of the most important things in flock husbandry, and if they are properly handled and cared for at that time there should be no trouble in raising 14 to 15 lambs each year from every 10 ewes.

Shoulder Galls

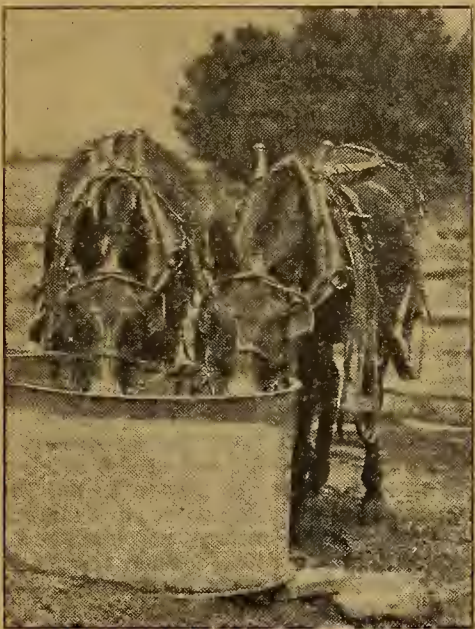
THE teeth and the shoulders of the work horses have to be watched. If the teeth aren't in good shape the food won't be chewed properly. This will result in indigestion, and the animal will soon be in poor condition. Filing away the sharp corners of the teeth will many times correct the trouble.

Ill-fitting and sweat-covered collars will cause shoulder galls. A collar should fit snug against the shoulder, with room enough at the bottom to insert the open hand. Many persons use two sets of collars when the spring work first opens. One set is larger than the other, and is used before the horses have been worked down any; the other after the surplus fat has been worked off and the horses' necks are in working condition. This lessens shoulder trouble.

To treat shoulder galls use a salve made of zinc oxide. It should be applied at night or when the horses are not being worked.

Feeding Work Horses

HOW to keep the work horses in good flesh to do a maximum of work at a minimum of expense of feed is one of the problems presenting itself at the beginning of every crop-growing season. In the corn belt, corn is the cheapest feed



Because they sweat so freely, work horses and mules drink a lot of water

for work horses. It should be supplemented with clover or alfalfa and timothy or prairie hay. Using prairie hay as a part of the hay ration lessens the cost.

In some parts of the country, oats can supplement a part of the grain ration at less cost than corn. With corn at 70 cents and oats at 50 cents, shelled corn costs 1.25 cents a pound to 1.56 cents a pound for the cost of the oats.

The horse-feeding experiment of a year's duration at the Ohio Experiment Station, some years ago, showed that a bushel of ear corn, including the weight of the cob, was equal to the same weight, or 70 pounds of oats. At this rate it would cost 23 cents a day to keep a horse eating 15 pounds of grain a day if fed oats, and only 15 cents a day if fed corn.

More corn and less oats is fed to work horses every year. The horses thrive better if they are fed clover, alfalfa, or other as nutritious hay than if fed timothy or prairie hay exclusively. Using only half clover or alfalfa in the hay ration keeps the cost down.

Why Pigs Have Thumps

THUMPS is a disease common in pigs. Spring litters are especially susceptible to thumps because the sow and the pigs have less chance of exercise than in the late summer and fall. The disease is due to an overloaded stomach and, too little exercise.

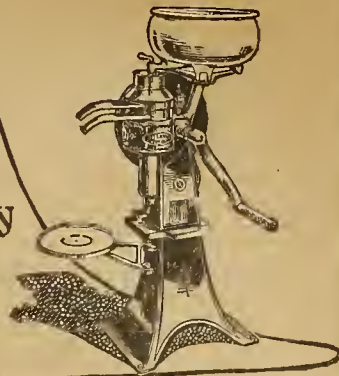
If the weather is too cold or disagreeable to turn the sow and pigs out for exercise, the pigs should be placed outside of the pen so they can't get back. In running around trying to get back to their mother they will get exercise enough. Care should be taken that they aren't left away from their dam too long.

Thumps is nearly always fatal, and if a pig does recover it is generally stunted more or less.

Hogs Crave Ashes

IT IS a good plan to dump wood and coal ashes in the lot where the sows run. A mixture composed of a basket of charcoal or finely broken coal, five pounds of salt, five pounds of air-slaked lime, and two pounds of sulphur will satisfy the hogs' desire for mineral matter.

Clean Skimming
Easy Turning
Easy Washing
Small Repair Cost
Best Cream Quality
World's Highest Awards



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Stands On Its Record

FOR nearly forty years the De Laval Cream Separator has led in the cream separator field. It was the pioneer in 1878. It had a long start and has always held its lead. It has always led in every step of cream separator development and popularity, and more De Laval are in use today than all other makes combined.

It has always been recognized as the closest skimming cream separator. That's the main reason why 98% of the world's creameries use it to the exclusion of all others.

Because of its cleaner skimming, ease of operation and wonderful durability, every De Laval user is a "booster" and the better its work is known in a neighborhood the more popular it becomes.

The better quality of cream it produces is attested by the fact that De Laval produced cream and butter have scored highest at every annual contest of the National Buttermakers' Association for twenty-four years and in every great representative contest for over thirty years. Last but not least, the De Laval was awarded the Grand Prize at the San Francisco Exposition in 1915 as at every other great exposition since its invention.

The creamerymen's choice can't be far wrong. The world's greatest dairymen and mechanical experts who act as judges at the great expositions can be depended upon to recognize real merit, and the fact that the De Laval is the choice of the majority of all cream separator buyers must mean a good deal to you. In your purchase of a cream separator can you afford to ignore these considerations?

Let the De Laval start saving cream for you right now. See the nearest De Laval agent at once, or if you do not know him write us direct for any desired information.



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165 Broadway, New York 29 E. Madison St., Chicago
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

**THE SCHOOL OF VETERINARY MEDICINE
AT THE UNIVERSITY OF PENNSYLVANIA**
trains students in all lines of veterinary work. Facilities unexcelled. For catalog, address Louis A. Klein, Dean, Dept. B, 39th St. and Woodland Ave., Philadelphia, Pa.

**Only \$2 Down
One Year to Pay!**

\$24 Buys the New Butter-fly Jr. No. 2. Light running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 35 quarts per hour. Made also in four larger sizes up to 6 1/2 shown here. Earns its own cost and more by what it saves in cream. Postal brings Free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money.

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450,000 TREES

200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Catalog free. LEWIS ROESCH, Box K, Fredonia, N. Y.

THICK, SWOLLEN GLANDS

that make a horse Wheeze, Roar, have Thick Wind or Choke-down, can be reduced with

ABSORBINE



also any Bunch or Swelling. No blister, no hair gone, and horse kept at work. Concentrated—only a few drops required at an application. \$2 per bottle delivered.

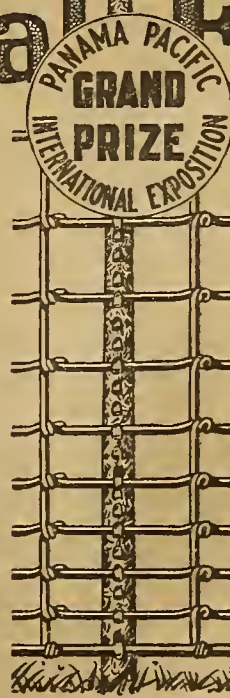
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W. F. YOUNG, P. D. F., 23 Temple St., Springfield, Mass.

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American Steel FENCE POSTS

cheaper than wood—more durable. Last a lifetime. Hold fence secure against all conditions.



This Fence carries the ideal tension curve—A gradual and effective curve placed at every intersection and under the stay lock in just the right place where it affords great elasticity and keeps the stay in place. The more the fence is stretched, the more firmly the stay is held in place.

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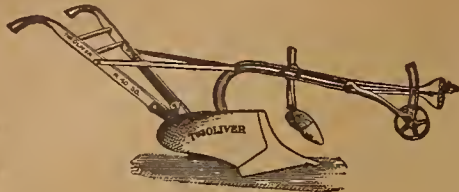
Write for booklet on how to set posts and erect fence. Every farmer should have it.

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IMITATION



Genuine Oliver

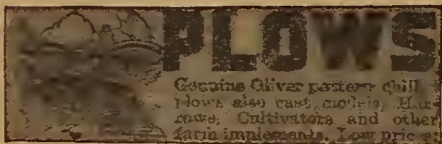
Imitation never equals the original. The man who originates knows what he is trying to do and why he is doing it. The imitator hopes to reap profit from the originator's efforts.

It is easy to imitate the shape of an article, but imitators' efforts fail to reproduce the quality.

If you will reflect upon imitations of genuine articles with which you are familiar you will agree with the truthfulness of this statement.

Considering the fact that man imitates for profit it is perfectly plain that he always imitates popular articles.

Oliver plows have been widely imitated for a great many years.



We reproduce here a portion of an advertisement that is appearing in farm papers. The fact that concerns who make imitation plows are deliberately advertising genuine Oliver plow patterns is the best evidence in the world that the Oliver plows are the standard.

When you buy the genuine Oliver you not only get the master pattern, but the quality that goes with it. You get a plow that you can absolutely depend upon.

Ask yourself this question—Which will do me the most permanent good, —the genuine or the imitation?

If you don't know, ask us where you can buy the genuine Oliver.

Oliver Chilled Plow Works

Plowmakers for the World

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WANTED TO BUY GOOD FARM in a Good Location. State full particulars and terms. **FRANK S. WELLS LETCHWORTH, HERTS, ENGLAND**

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BABY CHICKS 30 Leading varieties. \$12.00 to \$18.00 per 100. Safe delivery guaranteed. EGGS, \$1.50, 15¢; \$5.00, 100. Catalogue free. **Miller Poultry Farm, Box 55, Lancaster, Mo.**

POULTRY Pigeons best Squab Producers, twenty varieties fancy Chickens, Ducks, Geese, Turkeys. Our free catalogue explains all. Pure Northern Bred. Farm Raised. **ROYAL POULTRY FARM, Box 77, Menominee, Mich.**

Flashlight **ELECTRIC** **GIVEN** Tubular. For selling 20 pkts. Post Card or 20 Ark Religious Pictures at 10¢ each, your choice. Order today. **HERMAN & CO., 2310 Lincoln Ave., Dept. 558, CHICAGO.**

Will Advance Expenses and Pay Straight weekly salary of \$18.00 to man or woman with fair education and good references. No canvassing. Staple line. Old-established firm. **G. M. NICHOLS, PHILADELPHIA, PA., PEPPER BLDG.**

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Fish Bite like hungry wolves any time, if you use **MAGIC-FISH-LURE**. Best fish bait ever discovered. Keeps you busy pulling them out. Write today and get a box to help introduce it. Agents wanted. **J. F. GREGORY, Dept. 45, St. Louis, Mo**

SQUAB BOOK FREE Make money breeding PR squabs. 1916 demand biggest ever. Squab book free, telling money-making experiences. How to sell by parcel post, \$6 to \$8 doz. Start small, grow big. Many women customers. Write today. **PLYMOUTH ROCK SQUAB CO., 503 HOWARD ST., MELROSE HIGHLANDS, MASSACHUSETTS.**

Incubators, Poultry Supplies and Home Canners We sell everything to make the poultry business and home canning profitable. \$1.00 Philo System Poultry Book 25¢ \$1.00 Alfalfa, Farm and Poultry Book 25¢. Pedigree Single Comb White Orpingtons. Best low pressure Steam Canner \$2.00. Our "Poultry Profits" and Canner Booklet Free. **Cycle Hatcher Co., 2 Clover St., Elmira, N. Y.**

PIGEONS PAY Better Than Chickens. Young pigeons (squabs) bring 40 to 60¢ each when 3 to 4 weeks old. Big demand in city markets. Each pair of pigeons easily clear \$4 per year. Always paired up. Very little space and money needed to start. Free Book explains all. **MAJESTIC SQUAB CO., Dept. 10, ADEL, IOWA.**

GIBSON BABY CHICKS Sturdy healthy youngsters from farm-raised breeding flocks of pedigreed heavy layers. Safe arrival guaranteed. Gibson's chicks for hatching guaranteed 80% fertile. **WHITE LEGHORNS** **BARRED ROCKS** **R. I. REDS** **WHITE WYANDOTTES** Make your flocks more productive and profitable by adding Gibson's "Bred to Lay" breeding stock. Large, hearty and vigorous birds. Illustrated folder on request. **G. F. GIBSON, Galen Farms, Drawer H, CLYDE, N. Y.**



Garden—Orchard

An Acre of Orchards

By George W. Browne

SOME of the spring days can be spent no more profitably than in putting the orchard in shipshape condition. To see dilapidated farm orchards, always gives me a feeling of impatience. The orchards are not only eyesores but prevent the land from being used for something that would be of value to the owner.

I have a small orchard that we try to make pay its way. Here is my orchard account for 1915. There are 46 trees on an acre of land.

We thinned out the branches during fine spring days until the sun could shine in at all angles and we could conveniently cover every tree with lime-sulphur solution. Then we scrubbed each trunk down with whitewash, using a stiff broom. As a further help we kept our bunch of hens picking scattered grain from among the grass all springtime. They were sure to find most of the insects as they crawled from hibernation.

Then we sprayed twice with arsenate of lead for codling moth, and paid our bill for spray materials as follows:

Lime-sulphur, 20 gallons \$3.00
Arsenate lead, eight pounds 1.20
Sack of lime25

Total \$4.45

Here is what the orchard did for us:

9 bu. harvest apples @ \$1 per bu. \$9.00
63 bu. early autumn apples @ 60¢ per bu. 37.80
21 bu. late autumn apples @ 75¢ per bu. 15.75
6 bu. fancy eating apples @ \$1 per bu. 6.00
40 bu. winter apples @ 80¢ per bu. 32.00
66 bu. winter apples @ 60¢ per bu. 39.60
14 gal. apple butter @ 65¢ per gal. 9.10
80 gal. cider @ 15¢ per gal. 12.00

Total \$161.25

That is what we sold from the acre besides pasturing two calves in the orchard, which we sold for \$13.50 before the early apples ripened.

Aside from these sales we have had our supply all the year for the family, and have 15 bushels in a pit, not yet opened, for spring use.

Our orchard is primarily for the family, and were I planting again for the same purpose I should plant about the same varieties.

The tree are: 1 Transparent, 1 Early Harvest, 1 Astrachan, 3 Wealthy, 4 Duchess of Oldenburg, 3 Rambo, 3 Gideon, 1 Pewaukee, 1 Fameuse, 1 King, 3 Grimes Golden, 3 Stark, 3 Baldwin, 2 White Pippin, 2 Northwestern Greening, 2 Gravenstein, 2 Ben Davis, 2 Wagener, 3 Danvers Winter Sweet, 3 Delaware, 2 Rome Beauty.

The fancy apples in the item were the Pewaukee, Wealthy, Rambo, and Gravenstein, sold to a confectioner to retail two for a nickel for eating.

The best-selling winter apples were Stark, White Pippin, Danvers Sweet, and Northwestern Greening.

IF THE manure in the cities were obliged by law to be shipped out to a safe distance every day, the cities would have fewer flies and less typhoid.

Boosting the Tomato Crop

By F. R. Finch

I HAVE learned some things of value to me since first beginning to grow tomatoes for the cannery thirty years ago. The manager of a cannery in Clermont County, Ohio, recently told me that the average crop of tomatoes grown for the canneries in his county is less than 100 bushels per acre. For thirty years prior to 1908 our average annual yield did not once fall below 200 bushels per acre, and sometimes reached the 400 bushels per acre mark.

In the early years of our tomato-growing we furrowed both ways, and manured heavily in the hill. This plan was too expensive and was not such good practice for succeeding crops. Our later plan was to use a good clover sod on which 10 or 12 tons of stable manure were spread during the winter. The land was then disked, then plowed, disked again, and thoroughly fitted. It was next marked both ways, 3½x4½ feet, and the plants set in the furrow marks rather deep, and more soil worked around them later when cultivating.

About 300 pounds of high-grade fertilizer is spread about the plants—a handful to each plant. This fertilizer is then cultivated in. We do not want plants over four inches high for setting out. The best crop I ever raised came from plants two inches high when set.

In this locality (southern Ohio) seed sown in cold-frames April 10th, or in open ground April 25th, furnishes plants at practically no cost.

Why Mulch Small Fruits?

By R. E. Rogers

AFTER a good many years of experience with currant bushes, we have found that we cannot afford to cultivate them after the second year. We used to do that and had a continual fight with weeds and grass, and the bushes were seemingly no better off than when let alone.

Now we have started to mulch. We haven't gone at it by the wholesale, but have started at one end of the patch and dumped in different things as we could without taking it up as a particular job.

Part of the bushes are mulched by cornstalks from the fodder shocks that were moldy and unfit for feeding. Some old straw was used in other places. But the most of it came from the feedlot where the cornstalks were thrown after the stock had eaten the edible parts. This amounted to a good deal, and from three or four winters' feeding we have a good deal of space covered.

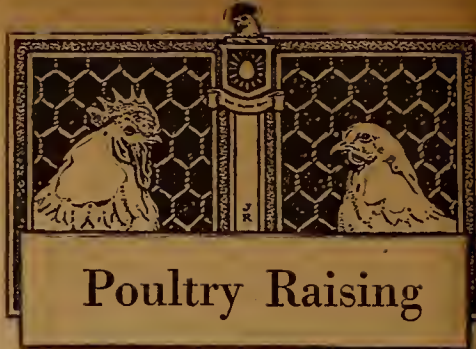
They are rather hard to handle, it is true, but we usually try to do this at odd times and a little at a time. Many times when work is not rushing we carry the stalks direct from the mangers to the patch and save further bother.

Now that these bushes are covered, we find there is no more cultivating trouble and the hoe doesn't have to be used. The bushes have a clean floor for the fruit that happens to droop lower than it should, and so dirty currants are not to be found any more.

AN INDIANA man kills moles by pouring water in their holes and runways when they are working.

A BREED of navy beans has been developed by the Minnesota Agricultural College which is resistant to blight to the extent of producing eight or ten bushels more beans to the acre.

A STUDY of original records of the weather running back to the year 709 shows that the climate of the earth is about the same now that it has been for at least eight hundred years. If any change has occurred it is a trifle warmer now, but the change is insignificant.



Poultry Raising

Save the Gaping Chick

By Ruth C. Gifford

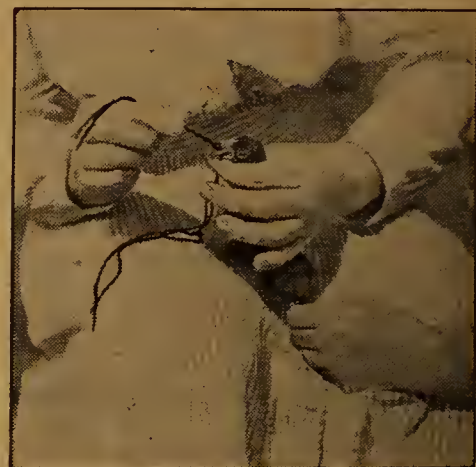
DURING the season of 1915 my mother and I "gaped" 150 chickens which had the gapes badly, and lost only three of them. In those three the worms were tangled in a ball. In a few similar cases we were able to loosen the ball by rubbing the chick's throat with an upward motion between the thumb and first finger.

To save the chicks with gapes, we work as gently as possible, and hook a piece of fine strong white string over the two little prongs on the back part of the chick's tongue. Then draw the tongue gently forward until the top of the windpipe can be seen, and transfer the string to the left hand. Have a coarse horsehair twisted with a small loop in it.



The chick should be held firmly, but carefully to avoid injury

Dip the loop in turpentine and force it down the chick's windpipe, twisting it as it goes down. Although there is only a small amount of turpentine on the loop, it is enough to help loosen the worms. The worms, as experienced poultrymen know, have one end attached to one side of the windpipe and the other attached



A loss of only one chick out of 50 treated spells success

to the opposite side. When the loop is pushed down with a twirling motion it scrapes the worms loose from the walls of the windpipe and tangles them around the horsehair. Then jerk the hair straight up and out so the chick will not smother. Remove the string from its tongue to afford it a few minutes' rest. If no worms came up on the hair, or if the chick did not sneeze them up and swallow them, which often happens, try again. Should the second attempt fail, give the chick a drink of water and allow it to rest a while in a basket. Then if its gaping has not stopped, try again. If a chick dies it may be found that it hadn't the gapes at all, but that a piece of food had lodged in its windpipe.

Don't use any patent wire gapers or quills with a bit of feather on the end. Such treatment tears the membrane on the inside of the windpipe and causes it to bleed badly.

The easiest way we have found to find the gaping chicks is to hold a lantern in front of the coop after dark. They will huddle down when the light strikes them, but in a second the gapers will throw up their heads to gasp for air, and can then be identified and caught. We keep them in a covered basket until next morning, to have daylight for operating.

If anyone thinks this method of gaping chicks will not work, or that they cannot use it successfully, let them try it. "Seeing is believing."

By M. Roberts Conover

By Lewis E. Leigh

By J. W. Campbell

By Joseph Hickman

The Duet

A Story of Andy Davis's Easter Victory

By ANNIE HAMILTON DONNELL

"I HAVE the greatest respect for the Cloth." It had sounded funny when Aunt Janet said it to Mother. Of course Andrew had realized this Cloth meant something more important than just silk, or gingham, or—unbleached cloth; he recognized the capital C in Aunt Janet's voice. At twelve you can realize and recognize things.

He had questioned his mother afterward, and Mother had tried to explain the difference between Cloth and cloth.

"You mean—Aunt Janet meant—the minister's robe?"

"Aunt Janet meant what the minister's robe stood for, dear—his holy calling." Mother's nice, clear voice had dropped and softened at "holy calling," and Mother's dropped and softened voice always kind of thrilled Andy. Kind of thrilling you stops your talking, and so Andy had not asked any more questions. He did not need to—he understood.

The minister's robe was long and soft and black, and draped the tall, straight minister gracefully. Andrew wore a "robe" too, every Sunday, like the minister. Andrew's was very white—oh, very white indeed!

Mother said Mrs. Ripple did do up the boys' robes beautifully. Fresh-laundered every Sunday—one of the minister's well-off "flocks" (that was Andy's word) had agreed to pay all Mrs. Ripple's robe bills if the little white robes could be washed every single week and so be kept snow-white. That flock lady of the minister's had had great respect, too, for the Cloth. For Andy in his own mind had slowly reasoned his way to the decision that his robe, too, stood for a kind of holy calling. That is, when he thought of it at all he thought of it like that, but of course you get so used to putting on and taking off little white robes that you mostly don't think much about them. You're mostly in a hurry to get them off, anyway, if the minister's sermon has been pretty long.

Andy was putting his on now. It was a rehearsal, and ordinarily the choir boys were not expected to rehearse in their white gowns. But this was one of the last rehearsals before Easter morning and the choir-master had an idea of his own that the boys would sing better in white. He was so anxious to have this a good rehearsal!

"Andy is to sing a duet this year with that funny little red-headed Ripple boy—Mrs. Ripple's son—the one who washes the boys' gowns, you know," Mother was saying just at this minute to Aunt Janet, at home. Aunt Janet had come to the city for Easter. They were sipping tea out of Mother's thin little cups.

"Last year he sang alone—I mean Andy. He doesn't say anything about it,—but I believe he feels hurt to have to sing with the Ripple boy."

Aunt Janet's teaspoon halted. "Because his mother washes clothes?" she asked a little sternly. "Editha, I hope Andrew isn't a little snob!"

"He's a little dear!" Mother cried in her nice, clear voice. "Of course, not a snob! But they don't get on, somehow,—those two boys. Andy's head is a little bit red, you know. He calls the Ripple boy his 'enemy.' I've heard him, to his sister. It's rather hard to have to sing with an enemy. Especially—Mother's voice softened and dropped—"especially an Easter song. I feel sorry for Andy—and the Ripple boy."

"What's he sing with Andrew for, if Andrew can sing alone?"

Andrew could sing alone; Aunt Janet had a memory of him, standing there in his little white "Cloth" in front of all the other little white boys, singing as clearly and sweetly as a bell.

"Oh, Janet, they sing so beautifully together! I don't wonder Mr. Gray chose the duet. Andy's voice is very high and the Ripple boy's is rich and deep. He does sing wonderfully—wonderfully!"

"Andy?"

"The Ripple boy. Of course Andy too, but not quite—oh, I suppose that is hard, too. Poor Andy, he's been the best singer ever since the choir was started. The Ripples are newcomers."

The Easter duet, "He is risen! Christ is risen!" was being rehearsed and rehearsed, up in the choir loft at the church. But Mr. Gray was not satisfied; a frown had gathered between his brows.

"Stand closer together, can't you? Up nearer, nearer, Andrew!"

But Andrew did not want to stand up nearer, nearer. He held one edge of the sheet of music and the Ripple boy the other—a wide space between the two white, stiff figures.

"One of you is off the key—something is wrong! You've never sung it like this before." But, oh, they were singing it "like this" now!

"You're the one—you're off," whispered the Ripple boy at an interval of rest. "Off o' the key! Off o' the key!"

"I'm not, either—you are!" flashed back Andy to his enemy. His cheeks burned bright red above Mrs. Ripple's snow-white. Wait till rehearsal was over! Give him just long enough to get into that little back room where they unrobed!

But when they got into that little back room Andrew did not unrobe with the rest. A thought had plowed its way straight through his sizzling anger. He and Dinny Ripple out there in front, in the—in the—Cloth! He had not thought about their being in the—Cloth. It suddenly came to Andy—plowed straight through—that this was not "having respect."

"Off o' the key! Off o' the key!" taunted Dinny Ripple in his ears. No thought had plowed through Dinny.

"Come on! Get outer yer gown an' come on! Scare-cat, to let anybody tell you you're offer the key!"

To Mother and to Aunt Janet, still holding the

empty little thin cups, appeared a small swift ghost in red and snow-white—red cheeks, white robe. Andy stood before them in the open doorway.

"Andy! Why, Andy! You didn't take off—you've got your robe on, dear! You didn't wear it through the street?" Mother set her cup down a very little hard—for Mother. Aunt Janet's eyes were on the red of Andy, not the white.

"I didn't dare to take it off! I had to keep it on!" stammered Andy. He was out of breath with his ghost flight through the street. "If I'd taken it off I'd've—I'd've hit him! Honest, Mother, I would've. So I kept it on. You see, I had to."

"I see," Aunt Janet said, nodding her head.

"You mean that Ripple boy—"

Andy nodded his.

"He called me off o' the key an' scare-cat. Mother, don't let me sing with him Easter! Write a letter to Mr. Gray. I—I don't feel very well, honest I don't. Please, Mother!"

The red was actually fading out of Andy, and he was growing all snow-white. He sat down suddenly in a chair.

Mother was instantly beside him, gently undoing the little white "Cloth."

"You ran too fast, dear," she said.

"You won't let me sing with Dinny Ripple, Mother?"

"You must, dear,—there is not time to change. Think of poor Mr. Gray, after all his work!"

But Andy was thinking of poor Andrew—just of poor Andrew.

"What is it you're going to sing, Andy?" Aunt Janet was asking. "When you get your breath you sing a little of it for me. Wait and get your breath."

"He is risen! Christ is risen!" sang Andy, up high and sweet. His clear little voice seemed to fill the room. Aunt Janet felt her throat fill. But suddenly the clear voice stopped. Andy's throat it was, this time. A twin thought to that other thought of—of the Cloth had plowed through his mind and stopped the beautiful song. He and Dinny Ripple standing there singing that—*angry!*

"Come over here and let me tell you a story, to get your mind off Dinny Ripple," Aunt Janet said.

But when she had finished the story, there he was with his mind back on Dinny Ripple!

The story was about Andy's father, who was Aunt Janet's brother. About something he did once to an "enemy" of his, when he and his enemy were boys. Chopped wood!

"You see, the woodpile looked so big and the enemy looked so little—your father was large of his age, like you, Andy. Nobody made him chop wood because his father—your grandfather—was well off. But, mercy, how the 'enemy' *wasn't* well off!"

"How much'd he chop? How long?"

"Your father? All one moonly evening, hard as he could chop. For a surprise to the enemy—he just 'took a notion' to do it, he said. Do you know what else he chopped besides wood that moonly night, Andy? You can't guess?"

"No," Andy said. "Go on, please, Aunt Janet."

"The enmity's head off!" laughed Aunt Janet. "That's what he always said. Not the enemy's—the enmity's. The next morning he liked the enemy. It's queer about that—when you do things for people it makes you like them. If you ever tried it—"

So there was his mind again, back on Dinny Ripple! Dinny was little and Lookover Hill was big. The minister and the church were on top of Lookover Hill, and every Saturday Dinny hauled his mother's cartful of snow-whites up that terribly steep incline. Andy had seen him hauling again and again. Supposing the next time he saw Dinny Ripple and that heavy cart, supposing he "took a notion," the way his own father had taken a notion—a heavy cart instead of a woodpile—

Saturday came very soon. Andy watched for Dinny and the cart. They came toiling up Lookover Hill. Andy was hiding near the bottom, ready to take that notion.

There were all the snow-white robes in the cart and all the minister's family's sheets and shirts and clothes. Dinny's thin arms stretched taut. Dinny groaned softly to himself. Why wasn't he big o' his age like Andy Davis? Made a fellow ashamed to be so meechn' little, standin' singin' out o' the same book with a fellow that's big o' his age! Goodness, this cart was heavy—why, no! No, it wasn't either! Suddenly it felt almost light to Dinny Ripple. Up the steepest part o' the hill, too! He found himself going on blithely, the minister's shirts and sheets, the snow-white robes, clattering behind him. His arm actually loosened and rested! Then Dinny looked behind him.

Two pairs of eyes glared at each other—stopped glaring—twinkled a little—*laughed!*

"You been pushin', Andy Davis?"

"I took a notion, Dinny Ripple."

They were at the top of Lookover Hill now, standing stock-still, laughing. Andy suddenly knew that he had inherited his father's liking for his "enemy." He liked Dinny!

"Say, Andy—Andy—"



Red cheeks, white robe. Andy stood before them in the open doorway. . . "I had to keep it on," stammered Andy

"What say?"

"You weren't off o' the key; it was me."

"You've got the best voice, Dinny Ripple, honest you have. Everybody thinks so."

"Well, you've got the best—the best key!"

The next morning, Easter—a rapt and shining Easter—a beautiful day for His rising. Two boys in snow-white gowns stood out in front of all the rest, holding the book together, standing close. They were no longer enemies—friendliness had "risen" within them, on this beautiful day of rising. Clearly and earnestly they sang—Andy, high and liquid, Dinny Ripple deep, sweet, and wonderful.

"He is risen! Christ is risen!—risen!—risen!"

The Farm Mother

By EDGAR L. VINCENT

THE farm mother? How is the mother of the farm any different from the mother elsewhere? And yet, in some ways she is and must always be. Nobody occupies just the same place in the world that the mother of boys and girls does out on the farm. There do come some days to the wife and mother of the town when she may unbend, slacken the girdle a bit, and rest; but the days of the farm wife and mother are very much alike. Every day there is the same routine to go through—baking, washing dishes, cooking for the men-folks, sweeping, and all the other work of the house—and it is tiresome. No wonder that when night comes, and the last little tired body is put to bed for the night, the mother sighs, and maybe cries a bit, all by herself. She is so tired!

And it is in these tired moments that the bitter words are apt to slip from the lips; words which would not be spoken were it not that every nerve in the body is a-tingle with pain; words which in the days to come will return to plague and hurt the soul. Not for the world would any mother do or say that which might linger in the memory of her boys and girls and cause them to say by and by, "I wish Mother had not said it! I can't forget it!" How, then, shall the mother of the farm keep from doing and saying the things she should not?

In every farm home there is at least one room to which one may go and be all alone. It may be now a poor little room, but make it bright and cheery. A bit of paper on the walls, a few cents' worth of paint on the woodwork, an easy chair or two, and a window that lets in the blessed sunshine freely.

When the men-folks are away at work and the little ones are at school or about their play, slip away to this room and lie flat down for a few minutes. Shut the eyes. Let every nerve and muscle be lax. Think of nothing at first. Then let some good thought of your own or another fill the mind. Tell it over and over again, until at last peace comes and the tired body is restored to its wonted strength and vigor. Then you can go back to life's simple round with a song.



Sunday Reading

Wet-Weather Talk

By James Whitcomb Riley

IT HAIN'T no use to grumble and com-
plane—
It's jest as cheap and easy to rejoice—
When God sorts out the weather and
sends rain,
W'y, rain's my choice.

Men ginerly, to all intents—
Although they're apt to grumble some—
Puts most theyr trust in Providence,
And takes things as they come;
That is, the commouality
Of men that's lived as long as me
Has watched the world enough to learn
They're not the boss of this concern.

With some, of course, it's different,—
I've saw young men that knowed it all,
And didn't like the way things went
On this terrestschul ball,—
But all the same the rain, some way,
Rained jest as hard on picnic day;
Er, when they raily wanted it,
It mayby wouldn't rain a bit!

In this existunce, dry and wet
Will overtake the best of men—
Some little skift o' clouds'll shet
The sun off now and then.
And mayby, whilse you're wuendern who
You've fool-like lent your umbrrell' to,
And want it, out'll pop the sun,
And you'll be glad you hain't got none!

It aggravates the farmers, too—
They're too much wet, or too much sun,
Er work, er waitin' round to do
Before the plowin's done;
And mayby, like as not, the wheat,
Jest as it's lookin' hard to beat,
Will ketch the storm—and jest about
The time the corn's a-jintin' out.

These here cy-clones a-foolin' round—
And back'ards crops!—and wind and
rain!—
And yit the corn that's wallerd down
May elbow up again!
They hain't no sense, as I can see,
Er mortals sich as us to be
A-faultin' Natclur's wise intents,
And lockin' horus with Providence!

It hain't no use to grumble and complane;
It's jest as cheap and easy to rejoice—
When God sorts out the weather and
sends rain,
W'y, rain's my choice.

(By Permission of Bobbs-Merrill Co.)

The Grouch Jinx

By A. L. Roat

MOLLY chased the Grouch Jinx in a
very artful manner. Her father,
Silas Green, was the original grouch.
Never was he pleased with anything or
satisfied with anybody's actions. When
Molly left home and Daddy Grouch to
get married she determined the grouch
would never enter her home.

One Tuesday morning while her hus-
band, Sam Worth, was working in the
field, Molly put her purpose into effect.
The following Sunday her parents had
promised to spend the day with her, and
she was anxious to try out the Jinx
remedy on her father. So she printed a
few well-chosen phrases and hung them
in appropriate places.

On the bathroom mirror hung a sign:
"When you look at me smile." Over the
washstand: "Brighten up your corner."
In the kitchen over her work table:
"Song makes work easy." On the side-
wall: "All work makes Sam a dull boy—
how about Molly?" Outside on the
kitchen door: "Sunshine nest—the
Grouch Jinx cannot enter here." On the
pump: "Whistle while you work the
crank." On the living-room mantel:
"This is not a tomb; it's a recreation
parlor." On the reading table: "Re-
member that you can read but one thing
at a time." On the side wall: "Vacation
saves a doctor bill." On the sideboard in
the dining-room: "A grouch and indi-
gestion are compaioun diseases—eat a
little; talk a little; laugh heartily, and
get acquainted with yourself." On the
bedroom dresser: "If the woman you
married is not your coufidant, co-adviser,
helper, and partner, she is not your
wife," and, "Two heads are better than
one when a pair of hearts beat true."

Molly finished her decorations and her
heart beat fast when she heard Sam

pause at the kitchen door. Presently he
burst into the room and his strong em-
brace and his hearty compliments as-
sured Molly that she had her husband's
confidence and love, and she was happy.

But how about her father—how would
he accept the reminders? Molly was sure
her design would effect a result. When
Sunday came and her parents arrived,
Molly and her mother left Daddy Green
in the living-room while they went up-
stairs. In the seclusion of her bedroom
Molly unfolded her plan to her mother.

Presently they heard Daddy Green
grumble and rant to himself, and Molly
knew he had observed the placards. They
waited for a final outburst. He went
outside and slammed the door behind
him. Mrs. Green started mechan-
ically for the door, but Molly blocked her
path. "Wait, Mother," she coaxed.

The women peeped through the win-
dow curtains. Silas strode down the
path and entered the pump house. A
soft, low whistle rose above the screech
of the pump handle. Molly giggled.
Outside of the pump house was a little
pile of rubbish and on it a notice:
"Grouch Jinx germs bred here. If the
Grouch Jinx is already in you, burn this
pile and dispel him forever. Join the
Sunshue family and get the best out of
life."

Slowly Daddy Green pondered over
that sign. He started to go to the baru,
hesitated, and returned and read the
notice again. Then he turned and looked
in all directions, plied a match to the
rubbish heap, and watched it burn to
ashes. As he walked back to the house,
his hands stuffed deep into his pockets,
whistling loudly, his head held high,
Molly knew that the Jinx had left him
forever.

He Did it with Joy

By Eva J. DeMarsh

"HE DID with joy what tasks his
Lord imposed." Of how many of
us, I wonder, can this be said? We all
do, and that many times, what calls for
great exertion or sacrifice, but how many
of us perform with joy the task the Lord
imposes upon us? Not so many, methinks,
as grumble and beg and plead of the Lord
to let them off. Poor, weak, shrinking
cowards and shirks! Don't we know
that if we do not do the thing another
must? And, besides, God honored us in
the choosing. He had not believed in us
and our capabilities, his choice would
have gone elsewhere.

"Let us then be up and doing,
With a heart for any fate;
Still achieving, still pursuing,
Learn to labor and to wait."

To do with joy. It takes a brave heart
and a constant heart, a heart filled with
infinite love and hope and faith, a Chris-
tian heart, to do that. We joy in the task
only as we love it, or as it is performed
for one we love, and only as we love it
will its accomplishment be worthy of our
efforts.

To joy in a task need not necessarily
mean that in it we find happiness for our-
selves, but it must mean that we go to it
earnestly and lovingly, execute it with
patience and care, and be glad that it is
ours, because God wants us to do it our
way, as He directs.

Few of us would, methinks, for a mo-
ment doubt that, in the consecration of
his life to the unfortunate and sinful of
earth, Commander Booth of the Salvation
Army did with joy the task the Lord im-
posed upon him, yet I have heard him say
that that was not the way in which he
first thought to reach men. Nevertheless,
he did it, and did it nobly, and almost at
the close of his long life he knew that
success had crowned his efforts, "because
Jesus has all of me."

In one of his sermons the Reverend
David Burrell says:

"When God said, 'Let us make man,'
then came upon man the supreme obliga-
tion to serve God with his whole being."

And how better can we serve him than
by doing gladly and cheerfully whatever
He asks of us?

God's business is a splendid business,
and no man can do better than to follow
it. It is a business which pays largely in
dividends, not alone to humanity, not
alone to Christ and His Kingdom, but to
the man who joyfully pursues it.

"Man's chief end is to glorify God and
to enjoy Him forever." That glorifica-
tion may be by word, by song, by minis-
try, by practical application of the powers
and talents God has given him; it may
mean a doing or a helping to do; but
whatever it be, there is but one way in
which it can be carried on, and that is
wholeheartedly and with no repining.

"He did with joy what task his Lord
imposed." Surely, no finer tribute could
be paid any man. Not alone "duty done,
victory won," but a duty graciously done
and a victory won because it deserved
to be.

It is said that "the Lord loveth a cheer-
ful giver," and so He does, not alone
when His treasury is to be filled, but

wherever service for His cause may be
required. Shall we not, then,

"Weave in the web of life
A bright and golden filling.
And do God's will with a ready heart
And hands that are swift and willing."

rather than to

"Snap the delicate, slender threads
Of our curious lives asunder.
And then blame Heaven for the tangled
ends.
And sit and grieve and wonder?"

Book Review

THE GARDEN AND FARM ALMANAC of
Doubleday, Page & Co. for 1916 presents
in a pleasing way a vast fund of infor-
mation, including garden and building plans,
descriptions of principal breeds of live stock
and poultry, insect pests and how to control
them, planting tables, and lists of the best
books and Farmers' Bulletins. 192 pages.
Illustrated. Doubleday, Page & Co., Gar-
den City, L. I. Price, 25 cents.

How a Maine Dairy Grows

[CONTINUED FROM PAGE 3]

or four weeks, whereas cows freshening
thru in flesh must be fed heavily from the
first, as they have no reserve to draw
upon.

"For the past three or four years we
have been increasing our herd at the rate
of about five cows a year. Our aim is to
raise enough calves to keep our herd
good, but so far we have had to buy cows
from time to time to do even that. On
the whole, we can raise better cows than
we can buy, but keep no heifers that fail
to come up to our standard.

"We have been using mechanical milk-
ers for nearly two years. As a business
proposition we find them very satisfac-
tory and, with the increasing difficulty in
getting good hand milkers, would not
think of going back to the old system.
We do not get quite so much milk per
cow per year as with first-class hand-
milking, as most cows tend to go dry a
little sooner with the machines, but be-
lieve that we more than offset the loss by
the time saved. The essentials to success
with mechanical milkers seem to be intel-
ligent care of the machines themselves
and judgment in their use. We would
not think of using machines without
hand-stripping. The machines are also
time and temper savers in breaking in
heifers.

To water, the Pops still turn out the
cows, two at a time, in the barnyards.
They have tried watering twice a day,
but found that the cows drink better and
more regularly when watered once. They
do, however, warm the water to about
70° F. to avoid chilling the cows. In bad
weather, water basins in the stalls, they
believe, would be of decided advantage,
but might give trouble from freezing in
the Maine climate. Advanced registry
feeding has shown them conclusively that
more milk can be obtained by frequent
watering, but the practical difficulty in
supplying it is considerable; besides, they
wouldn't want to keep cows tied up six
or seven months in the year. Theoretic-
ally they could be turned out for exer-
cise on pleasant days, they believe, but
any practical farmer knows how seldom
he would get round to do it. They have
yet to find a wholly satisfactory method
of watering.

"After keeping Guernseys for seven
years and comparing them in various
ways with Jerseys," concluded Mr. Pope,
"we sold our whole stock of the former
last spring. Though probably better than
the average Guernseys in this section,
they gave less milk than our Maine State
Jerseys, and were much less economical
producers. Our Cow Test Association
records show that their butterfat cost us
eight cents per pound more than that of
the average Jersey in our herd. The
Guernsey-Jersey hybrids were even more
disappointing—coarse and scrubby look-
ing, and poorer than either of their par-
ents in points of production. Unless
Guernsey breeders in the East pay more
attention to performance, and stop rais-
ing anything and everything that hap-
pens to be Guernsey, they will soon give
the breed as unsavory a reputation here
as the Ben Davis apple now enjoys.

"Our greatest advance in the past few
years has been in the way of raising a
larger proportion of our feed on the
farm. In raising mill grain we cannot
compete with the Western grower, but by
raising more red and alsike clover and an
abundance of corn for silage we can ma-
terially cut down the grain bill. More
than that, we find that plenty of first-
class roughage is more essential in keep-
ing up the milk flow than any amount of
grain without good roughage. During
the past fall, conceded to be the hardest
in years for making milk, we were able,
by liberal feeding of silage and an occa-
sional feed of clover rowen, to maintain
an even flow throughout the fall, and
bring our cows into the barns for winter
without a drop—something we have never
before accomplished."

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"Wear-Ever"
Aluminum Stewpan
For
Only
25¢

if coupon is re-
ceived on or before
May 20, 1916.

Get the stewpan and you will understand
why so many women prefer "Wear-
Ever" to all other cooking wares.
Replace utensils that wear out with
utensils that "Wear-Ever".

Fill out the coupon
—get your pan
today!

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live in Canada) Northern
Aluminum Co., Ltd., Toronto,
Ont. Send prepaid, 1-qt. "Wear-
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in stamps or coin—money to be re-
funded if not satisfied. Offer good until
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6-pound FEATHER PILLOWS \$1.00 per pair. Satisfaction
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under cultivation. Twelve room house, two basement barns and
usual outbuildings. With a reasonable first payment, will give
long time on balance of purchase price. Address
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name signi-
fies. If a farmer wants to raise big crops, succeed in
poultry raising, dairying, hog raising, fruit raising, etc.,
this book will tell him how. It also gives the addresses of re-
liable commission merchants and firms who deal in farmers'
supplies. Price \$1.00, postpaid. The Hammond Press, Buffalo, N. Y.

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describing the SHAW Bicycle Motor At-
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and second-hand, \$35 and up.

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Dept. 88, Galesburg, Kansas.

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Cushions and Crates. Can
supply you with Ladders.

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with price list.

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AGENTS: ONLY ONE SALE
A DAY MEANS \$4 Profit
A splendid new money maker. Low
priced phonograph. Selling like
wild fire. Every family can
afford one. W. L. Aker made
5 sales first afternoon. A. Sol-
mano made \$24 first day.

Rowe sold 4 During Noon Hour
Marvelous tone. Produces sweetest
music, equal to high-priced machines.
Everybody who hears it wants one.
Henderson says: "It's the easiest seller
and the biggest money maker I ever handled. Almost every demon-
stration means a sale." Write quick for home territory and plan
how we furnish demonstrating machine to Agents. Don't miss
this wonderful money-making opportunity.

THOMAS MFG. CO., 148 Gay St., DAYTON, OHIO

The Wonderful
SONORA
—the phonograph with the remarkable
tone quality, tone control and motor.
Listen to the Sonora and you will discover the
latest scientific perfection in phonographs. Its
superior points won for it the only prize given
at the San Francisco Exposition for Highest
Tone Quality.

The Sonora Will Play Perfectly All
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You can obtain this machine for \$35.00 and up. Easy
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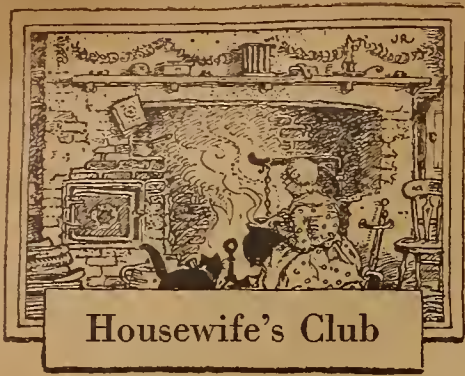
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Clean Foods

By Mina Rowe

THE modern housewife wishes to know something of those tiny organisms which we call bacteria. In her fight for the health of her family she knows that her chief ally is cleanliness.

Now, we know that the most of our diseases are caused by germs so tiny that they are not visible to the naked eye. But this is not all the harm they do; they make our butter stroug, they sour our milk, they cause our eggs to "rot," they spoil our fresh and canned foods, and they produce in oysters, meat, fish, and ice cream poisons which we call ptomaines, and which cause one of the quickest, most painful, and most generally fatal of human ills.

All bacteria have two friends absolutely necessary to their growth—warmth and moisture. They all have two enemies—cold, which prevents their growth; and heat, which kills them.

As milk is a well-balanced food for human beings, so is it a popular one for germs. Those of typhoid fever, particularly, reproduce most rapidly in this medium. The longer milk stands in the warmth the more quickly it will sour. The disease-producing bacteria grow just as rapidly, and under practically the same conditions, as those which cause the souring, and they are much more dangerous.

Other foods, especially fruits and vegetables which are not to be cooked before serving, carry these treacherous little organisms into our bodies. Of course they are killed if the food is heated through. Be sure that the water which will enter your bodies in this way, as well as by the more thought-of method of drinking, is pure. If any eatables have stood exposed to dust and people, it is safer always to cook them. But even this precaution will not avail against those poisons which we have already mentioned—ptomaines. If meat, fish, oysters, or other food stands in a warm, dust-laden place, it is in danger of collecting a certain kind of bacteria which, by their growth in this medium, produce these poisons. Ptomaines are tasteless and odorless, so the only way for us to know whether the food which we eat contains them or not is by the painful result of eating it, or by our knowledge of the care that has been taken of it. It is our duty to know before we buy whether or not the purchased article has been properly cared for. If we happen to live where we have charge of the production of such foods, we shall do well to remember that for this class, especially, cold and protection from dust and all unnecessary contact are absolute essentials.

Housewife's Letter Box

Who Can Answer?

Will someone please supply me with a good recipe for making chili soup?
Mrs. R. B. W., Missouri.

Black Gnats

Mrs. A. E. E. of Indiana wants someone to tell her what to do to get rid of little black gnats that bother plants in the winter, without injuring the plants. Soon after they appear the dirt gets full of small white worms, and the plants begin to look sickly. Some say to put the heads of matches in the dirt, but that does not do any good. Last spring they almost ruined her early tomato and cabbage plants which she had in the house.

To Can Mushrooms

Would you kindly tell me how to can mushrooms, and also give a recipe for mushroom catsup? Mrs. L., Indiana.

MUSHROOMS, being of vegetable origin, are canned just as are other vegetables—for example, beans or sweet corn.

Pack the fresh mushrooms in glass cans, pressing them very firmly together; put the cover on, but do not screw it tight if the can has a screw top; if the can is of the lightning type, leave the lever raised, but have the top on se-

curely. Place the cans in a covered vessel of cold water deep enough to come well up to the shoulder of the cans. A wooden-slatted platform or layer of excelsior should be in the bottom of the container to keep the heat from cracking the jars. Cover the vessel and bring the water to the boiling point and keep it there for one hour. When the cans are removed from the boiling water, fasten the tops securely, and invert the cans to detect leaks. At the same time on the second day and the third day place the cans in the vessel, cover, and boil for an hour. The chances are good for mushrooms caused in this way to keep perfectly.

Instead of packing the mushrooms in the can before they are cooked, they may be stewed in milk or prepared in any manner for the table and then placed in the cans. In this way a greater proportion of solid mushrooms can be placed in the cans than when they are packed before cooking, and when the can is opened the mushrooms require only heating to be ready for the table.

Mushroom catsup may be made after the following recipe:

One peck mushrooms, carefully picked over, one pint vinegar, two tablespoonfuls salt, one-half teaspoonful cayenne, two tablespoonfuls mustard, one tablespoonful cinnamon, one-half teaspoonful mace, one-half tablespoonful cloves.

Cook the mushrooms with one cupful of water until quite tender, and rub them through a colander. Add to this pulp the vinegar and spices, and cook about half an hour longer. Bottle and seal.

This sauce is delicious with fish, steak, and cold meat.

How to Fix Prices

I have been making and selling some cakes, candies, and other edibles, and should like to know how to estimate the right amount to charge for them.

Miss M. M., Maryland.

THE best way to set a selling price for the articles made to sell is to estimate carefully the cost of each article; that is, estimate just how much the ingredients cost, the fuel for cooking, the charge for delivery, if you have a delivery boy—in fact, every expense in the making and marketing of your dishes. When you have found this price, you should add 100 per cent to the cost. For instance, if you find that bread costs you 10 cents a loaf, you should charge 20 cents for it.

It would be well to find out if any similar products are sold in your community, and at what price they retail.



Terms Used in Crocheting

By Evaline Holbrook

CH. STANDS for chain stitch, the stitch with which all pieces of crochet are begun. Everyone, every child, knows how to make it, even though she is utterly unfamiliar with any other form of crochet, and it is therefore useless to put down directions for working.

S. c. stands for single crochet. To make single crochet, one must have one loop on the needle. Another loop is picked up, in a stitch of the preceding row, in a chain, or a hole, or whatever the directions instruct. The thread then is drawn through the two loops on the needle, thus completing single crochet.

D. c. stands for double crochet. Double crochet is made in much the same way as single crochet, but before picking up the second loop the thread is thrown over the needle, giving three loops in all. Draw the thread through two loops, and again through two loops.

For short double-crochet stitch three loops are put on the needle as in double crochet, then the thread drawn through all three loops at once.

Make treble-crochet stitch like double crochet, but wind the thread twice instead of once over the needle before picking up the final loop. Work off the loops by drawing the thread through two loops, again through two loops, and a third time through two loops.

Slip-stitch is picked up like a single crochet. There must be a loop on the needle before starting, and a second loop picked up as instructed. Draw the second loop through the first, making a short, tight stitch.

* is a sign of a repetition in either crochet or knitting. Two *s always appear together—that is, no great distance apart. As one follows the directions a * will be reached, and seemingly it has no purpose and means nothing. Ignore it. A little later one finds a second *, and

at this point the directions usually read, "Repeat from *." This means to repeat the work from the * which was ignored, and the worker should return to that point and work the stitches which follow it a second time, or as many times as one is instructed to repeat.

To Mend a Tablecloth

WHEN a tablecloth begins to break or a small hole appears, cut a piece of white paper some larger than the place to be mended, baste securely over the hole and stitch on sewing machine, lengthwise and crosswise, very closely and evenly. It will look much neater and is easier than darning or patching by hand. I also mend sheets and bedspreads the same way. The paper will disappear when washed. Mrs. A. M., Iowa.

Recipes

Bread Sauce—Take two cupfuls of bread crumbs, a small chopped onion and lemon rind, a little pepper and salt. Mix all with a pint of milk, and boil gently for ten minutes. Remove the lemon peel and serve.

Hickory-Nut Loaf Cake—Two cupfuls of sugar, one-half cupful of butter, one cupful of sweet milk, five beaten whites of egg, three cupfuls of flour sifted with two teaspoonfuls of baking powder, one-half to one cupful of hickory-nut meats. Add the nuts last.

P. E. H., North Dakota.

Chicken Wiggle—Heat together two cupfuls of chicken, cut into small pieces, and two cupfuls of cooked peas. Make a sauce by melting one tablespoonful of butter and stirring into it two tablespoonfuls of flour. Add salt and pepper and one pint of milk, and cook until smooth, stirring all the time. Stir in one well-beaten egg. Turn the sauce over the chicken and peas, and heat all together a few minutes. Serve on toast, or heap on a platter and surround with mashed-potato rosettes.

Mrs. HUGH BUCKINGHAM.

Cocoanut Cream—One-half envelope of granulated gelatin, one-fourth cupful of cold water, one-third cupful of sugar, one teaspoonful of sugar, three eggs, two cupfuls of milk, one cupful of cocoanut, pinch of salt. Beat yolks of eggs and sugar. When milk is about boiling, stir in eggs and sugar and cook until mixture thickens slightly. Remove from fire, and add the gelatin, which has been soaked in the cold water five minutes. When cooled and beginning to set, add cocoanut and whites of eggs, beaten stiff, and flavoring. Line a mold with sections of oranges and pour in the custard. Serve ice cold. H. E. L., New York.

New Puzzles

Studies in Botany

Here are some elementary questions which will interest the botanical class of students, who, if they feel so disposed, might contribute a few similar queries of their own:

- Which is the most comfortable tree in winter?
- Which tree prefers the ocean?
- Which is the most melancholy tree?
- Which tree is useful to the mason?
- Which tree would you term the dandified tree?
- Which trees go in couples?
- Which tree is a person?
- Which is the most active vine?
- Which is the most venomous flower?
- Which vegetable is dangerous to a boat?
- What tree is always in debt?
- What plants are used on railroads?
- What is a good protection against thieves?
- Which plants follow cats?
- Which is the homeliest tree?
- Which is the shoemaker's tree?
- Which plant is always angry?

Answers to Puzzles

Puzzles Printed Last Issue

Juvenile Geography

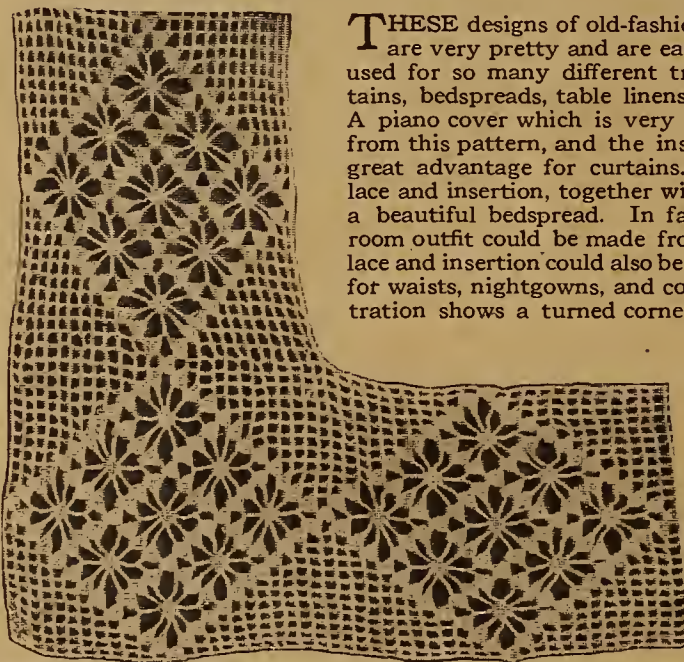
Shanghai, Wales, Negro, Chili, Slave, Greece, Turkey, Cayenne, Cod, Sandwich, Champagne, Cork, Orange, Grapes, Guinea, Cook, Canary.

The Kitchen

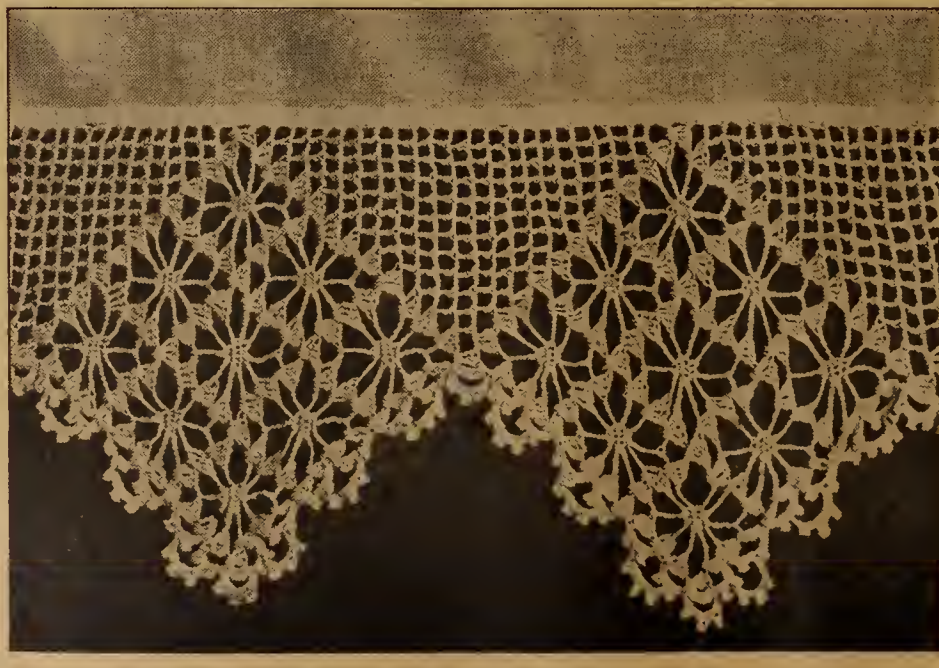
The kitchen in the All-Around-the-House rebus contains potato masher, sieve, sink, pancake turner, range, broiler, blacking, faucets.

EW

Spider-Web Lace and Insertion



THESE designs of old-fashioned lace and insertion are very pretty and are easily made. They can be used for so many different trimmings, such as curtains, bedspreads, table linens, and dress trimmings. A piano cover which is very much admired is made from this pattern, and the insertion can be used to great advantage for curtains. A combination of the lace and insertion, together with strips of linen, make a beautiful bedspread. In fact, a very dainty bedroom outfit could be made from these designs. This lace and insertion could also be made into pretty yokes for waists, nightgowns, and corset covers. The illustration shows a turned corner of the insertion. How to make the corner for both the lace and insertion is told in the complete directions, for which send six cents in stamps. Address your letter to the Fancy-Work Editor, Farm and Fireside, Springfield, Ohio.



Miss Gould Suggests Clothes for the Summer Season and Furnishes Woman's Home Companion Patterns for Their Development

HOW TO ORDER PATTERNS

SEND a note to the Pattern Department, FARM AND FIRESIDE, Springfield, Ohio. Give your measurements and the numbers of the patterns you want and enclose ten cents in stamps or coin for each pattern. The patterns will be sent you by return mail.

No. 3020—Shirt Waist with Buttoned-Back Revers. 34 to 42 bust. Material for 36-inch bust, two and five-eighths yards of thirty-inch, or two and one-fourth yards of forty-inch. The price of this pattern is ten cents

Back of corset cover No. 3035

Showing corset cover No. 3035 in fitted style

No. 3035—Adaptable Corset Cover: Fitted or Gathered Style. 32 to 48 bust. The price of this pattern is ten cents

Showing the skirt attached to under-b blouse No. 3037

No. 3036

No. 3037

No. 3029—Yoke Waist with Strap Trimming. 34 to 44 bust. Pattern, ten cents

No. 3030—Three-Piece Skirt with Tucks at Hem. 24 to 34 waist. Width, two and three-fourths yards. Price of pattern, ten cents

No. 3036—Sport Blouse with Large Pockets. 34 to 42 bust. Pattern, ten cents

No. 3037—Three-Piece Skirt with Suspender Underwaist. 24 to 32 waist. Width, three yards. Pattern, ten cents

No. 3018—Child's Envelope Romper. 6 months, 1 and 2 years. The price of this pattern is ten cents

No. 3019—Girl's Dress with Applied Panels. 2, 3, 4, 5, and 6 year sizes. The price of this pattern is ten cents

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No. 3013

No. 3013

No. 3029

No. 3030

Woman's Home Companion patterns are the easiest, the most satisfactory patterns you can use. Write for one to-day and see if you don't think so

A Better Talc Powder

All talcum powders are not alike



There is just the right proportion of that mild and efficient antiseptic, boric acid, and of other sanative ingredients in

COLGATE'S TALC POWDER

A seasonable necessity, wonderfully soothing and refreshing to face and hands chapped and reddened by changing seasons. Gently dries the skin when used after the towel, imparting a delicate, lasting fragrance.

Eight perfumes to insure the satisfaction of all preferences—Floriant, a new and charming scent, Cashmere Bouquet, Monad Violet, Eclat, La France Rose, Dactylis, Baby Talc, and Violet—also Tinted talc and Unscented.

A dainty trial box of Colgate's Talc sent on receipt of 4 cents in stamps. (Mention perfume desired—except Floriant and Tinted.)



COLGATE & CO.

Dept. 89 199 Fulton St., New York
Makers of
Cashmere Bouquet Soap—luxurious, lasting, refined
A new size at 10c a cake

A HEALTH INSURANCE POLICY

TOWER'S FISH BRAND
REFLEX SLICKER \$3
when it rains

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TOWER'S FISH BRAND

JAPANESE ROSE BUSHES

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The Wonder of the World

Rose Bushes with roses on them in 8 weeks from the time the seed was planted. It may not seem possible but we Guarantee it to be so. They will BLOOM EVERY TEN WEEKS, Winter or Summer, and when 3 years old will have 5 or 6 hundred roses on each bush. Will grow in the house in the winter as well as in the ground in summer. Roses All the Year Around. Package of seed with our guarantee by mail, only Ten Cents. Japan Seed Co., Box 206, South Norwalk, Conn.

HOW OLD AM I?

$\frac{1}{2}$ of 1 + $\frac{1}{3}$ of 3 + $\frac{1}{6}$ of 12 = MY AGE

Win a Handsome Gift by Solving This Problem

Uncle Dave, The Pony Man, wants every boy or girl who reads this advertisement to try to solve this problem. It is not really difficult but will test your knowledge of fractions. After you have worked it out, send in your answer on the coupon below. If it is correct, your Gift will be sent by return mail. There are no strings to this offer. Every correct answer receives a gift.

I Want You to Know About My Pony Club

When I send your Gift for the correct answer to the problem, I will also send you full particulars of my plan for giving ponies to boys and girls who join my Pony Club. I am going to give Sparkler to some boy or girl. Why not you?

Clip The Coupon

SEND IN THE COUPON

And I will send you pictures of Sparkler and tell you how to win him. Be sure to send your answer to the problem also.

1000 FREE VOTES

To every boy or girl who clips out the coupon and mails it to me right away, I am going to give 1000 votes, which will count toward winning Sparkler.

So be prompt—Send the coupon to-day. It will bring you full information about winning Sparkler for your very own.

Clip The Coupon

UNCLE DAVE, FARM AND FIRESIDE PONY MAN

Department W, Springfield, Ohio

My answer is that Sparkler is years old. If this is correct please send my Gift, also information about your Pony Club.

Name

Post Office

County State.....

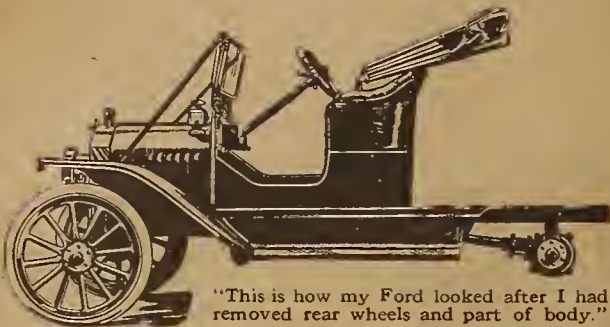
R. F. D. No.

How C.W. Printy saved a lot of money—

—a story every farm-owner should read

"**H**ERE was my situation. I needed a truck. I had many uses for one. I knew I could save both money and time by using one. But when I looked into the price of trucks, and found that the average one-ton truck cost about \$1500, I could not see my way clear to buy one.

I also wanted a new Ford car for my family. My



"This is how my Ford looked after I had removed rear wheels and part of body."

present Ford had done me good service and I knew it was still good for several years more.

One time I thought it would be cheaper for me to put a new box body on my Ford car. But then I figured I would not have any car for my family use and would have only a make-shift delivery car. Also if I got rid of my Ford second-hand, it would not bring anywhere near its real value.

I could not buy both a new Ford and a new truck at the price I would have to pay.

About this time a friend of mine, who owns a farm in Illinois bought a rear end construction especially designed to make a Ford car into a complete one-ton truck. He had wonderful success with it. It carried loads far in excess of the guaranteed one-ton load.

It was just what I wanted. I wrote the Smith Form-a-Truck Company, Chicago, for full particulars. They immediately sent me catalog and complete literature showing the adaptability of the Smith Form-a-Truck for farm use. I showed these to my friends and all agreed the Smith Form-a-Truck was the very thing for all-around trucking and hauling which the average farmer has to do.

I could see by converting my Ford into a one-ton truck by the use of the Smith Form-a-Truck attachment I could get full value out of my Ford. I would not have to lose anything on a "trade in."

I knew how powerful and dependable my Ford had been. Every one in our family could operate it without any trouble. I knew that most trucks used a lot of gasoline and oil, and were

expensive in repairs. And I also knew that the Ford engine was most economical.

When I found I could get the Smith Form-a-Truck one ton rear end construction for \$350, f. o. b. Chicago, I was astonished, knowing what it would do.

I noticed in the literature of the Smith Form-a-Truck Company that some of the biggest concerns in the country were using them, such as the Standard Oil Company, Armour, Morris & Company, Indian Refining Company, big department stores and cities, including the City of Chicago.

I knew that these big concerns had figured hauling and delivery costs down to a fine point. They knew these things better than I did.

So I sent and bought one of these Smith Form-a-Truck attachments. And you may be sure I could hardly wait for it to arrive.

It finally came. It was a fine piece of work. The steel frame fitted right over the frame of my Ford car up to the front end. It bolted together securely, thus doubling the strength of the entire frame.

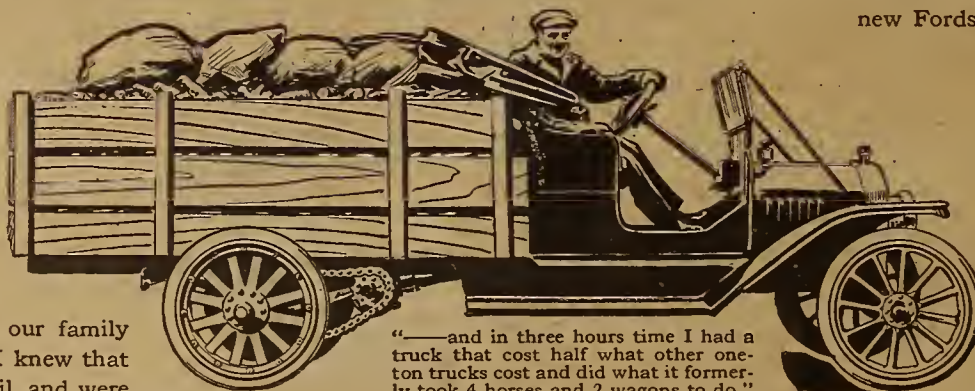
The frame was made of 4-inch channel steel, reinforced with cross members and corner braces. It was 14 feet long and accommodated a standard 9-foot loading body.

In three hours, with the help of another man, I converted my Ford car into a one-ton truck. None of the famous Ford mechanism was disturbed. The rear axle of my Ford became the jackshaft of my truck.

There were specially designed truck springs, a real truck axle 2 x 1 5/8 inches in size, and with all the strength of a big truck.

The tires were the famous Firestone solid rubber, pressed on. To make the drive they used chains of a heavy roller type.

I never saw such a surprised lot of men as my neighbors were when they realized that at the small



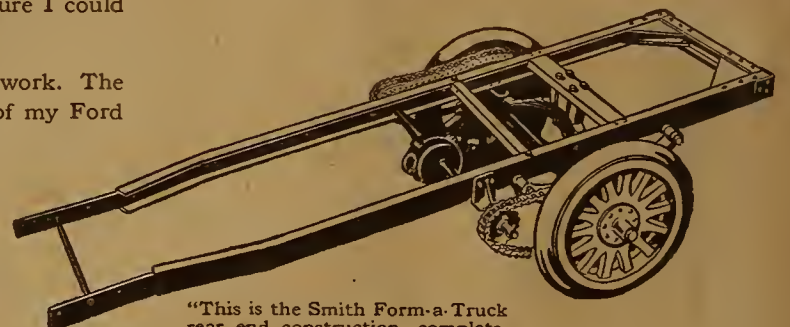
"—and in three hours time I had a truck that cost half what other one-ton trucks cost and did what it formerly took 4 horses and 2 wagons to do."

expense of \$350 I had turned my good old Ford into the finest one-ton truck I could possibly get.

And one of the best points about the whole proposition is that now I can afford to buy a new Ford for my family.

I can't tell you how thoroughly satisfied I have been in every way with this Smith Form-a-Truck proposition.

I have hauled 2300 pound loads of corn from my farm to Covington over soft gravel roads, and yet the Smith Form-a-Truck has stood up like a major. It used to take 2 wagons and 4 horses to do the work that I am now doing with my Smith Form-a-Truck.



"This is the Smith Form-a-Truck rear end construction, complete, just as it came to me."

If you knew the condition of the roads around here you would realize more and more just what it is doing for me.

No one had to tell me anything about the advantages a truck would be to me. I knew that, but I also knew that I could not afford to pay the price that the average one-ton truck costs.

And then there was the other problem of what to do with my Ford car. You helped me solve the whole proposition, and at a price way, way, way under what all my friends told me I would have to pay in order to get any kind of a truck at all. Now they are as much surprised as I am. Any number of them are figuring on turning their present Ford cars into Smith Form-a-Trucks, just as I have done, and buy new Fords this Spring for their pleasure riding.

If anybody should ask you, you can just tell them that C. W. Printy of Covington has got one of the finest trucks in the whole State of Indiana. And you helped me to do it."

C. W. Printy

\$9,000,000 sold to date—largely for Farm uses

Think of it—a guaranteed one-ton truck—built of the best procurable materials—a truck of proven dependability—at less than half the usual cost.

For three years—in practically every line of business—from California to the Atlantic—the Smith Form-a-Truck has demonstrated its unflinching performance, its won-

derful durability, its comparative freedom from repair expense, and its marvelous low cost of operation and upkeep.

"World's Lowest Hauling Cost"

We do not know of a single other truck that even remotely approaches the record smashing performance of the Smith Form-a-Truck or enjoys such universal endorsement of owners.

In the Smith Form-a-Truck we have added to the unparalleled dependability, matchless economy and wonderful durability of the Ford, an almost everlasting attachment that carries 90% of the load. This attachment has 4 inch channel steel frame, real truck wheels, solid rear Firestone tires, double chain drive, 125-inch wheel-base, Timken roller bearings, special heavy steel axle and springs and accommodates standard 9-foot roomy body. The wonderful time-tested Ford rear axle becomes the jackshaft of the truck without a change or additional penny of expense.

The attachment is all ready for use—telescopes on to any Ford—new or old—fits perfectly, bolts securely and reinforces the entire frame.

No skilled workmanship required—two men can do the job in a few hours.

We challenge the world to duplicate this truck for performance and economy. We know, and are prepared to prove that it gives the lowest hauling cost on earth.

12 to 15 miles of speed under full load—12 to 20 miles per gallon of gasoline—ridiculously low upkeep expense—and twice the work of four teams at half the cost.

Immediate Deliveries
We have the material for and are building 50,000 of these trucks for 1916. This material isn't simply contracted for—we've got it! Therefore we absolutely guarantee immediate

deliveries now and continuously throughout the year. Our big 2-acre plant is working day and night—and there will be no let-up. Your truck will be delivered on date promised.

SMITH Form-a-Truck COMPANY

921 Adams Express Bldg. Chicago, Ill.

\$350 and a FORD makes this guaranteed 1-ton Truck

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What's She Telling Teacher? See Page 16

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FARM and FIRESIDE

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Raising King Corn

What Many Successful Farmers Do to Produce Big Yields

By HARRY B. POTTER

BECAUSE corn is the money crop on many farms, it receives more attention than other crops. In the fact that this country produces annually about three billion bushels of corn, while oats yield less than a billion and a quarter bushels and other crops in proportion, lies the evidence that corn is important. Its importance is felt particularly on corn-belt farms.

The profit that comes from corn production varies with the farms because of local conditions, at times; but most frequently because of differences in farm management.

"When I began raising corn," says F. G. Smith of Isabella County, Michigan, "our neighborhood custom was to hill-up corn just as was done with potatoes by running a shovel plow or a small mold-board plow between the rows to throw up high ridges of soil around the corn. The idea was that corn required the moist earth well up around the stalk to support it and hold the moisture for later dry weather. Of course, the deep gouging done by the plow cut and tore off many corn roots, and also dried out the moisture of the soil very fast.

"Some years later the more observing farmers began to argue that such injury to the corn roots and rapid loss of moisture following the deep cultivation damaged the crop. These farmers began to practice shallow cultivation, only two or three inches deep, which formed an 'earth mulch' and prevented the evaporation of moisture. I have tried both ways, and watched the effect in my own field and on neighboring farms.

Big Yields Show Best Methods

THE influence of the deep working has proved to be a big injury except when the season is exceptionally wet. Then the furrows help to drain away the overplains of water. But such seasons are rare in this part of the country—central Michigan."

In fact, there are very few places where deep cultivation will be as well for the corn as shallow cultivation. Especially does the soil of the corn belt call for the shallow methods. I remember an Indiana farm on which I worked. The owner believed in the blade cultivator. He used that throughout a season. His reason was that you could go as deep as you ought to with that form of cultivator, and you could plow as shallow as you wanted to. He kept ten of these cultivators and used all of them in the busy season. He had the highest corn yields, for the same area, in his part of the State, and he said shallow cultivation, which destroyed the weeds, made the yields what they were. He cultivated as long as he could keep the machines in the field.

With this method we can compare the method used by Mr. Smith.

"I aim to cultivate until there are some roasting ears ready," he continues. "When I have left part of the field without the last late cultivation, the ears as a rule have not filled out so well, nor are the kernels so long.

"Last year, when the season was very dry, corn left without cultivation through the haying season rolled a good deal when later cultivation was resumed. The roots by that time were thick and strong near the surface and were torn up badly. But in the end I could see no difference between the yield or quality of late-cultivated corn

E W



This field doesn't look very promising, does it? Missing hills are caused mostly by failure to test the seed. Irregular growth is the result of a poor seed bed or inaccurate planting

and that which didn't receive cultivation after haying. "My soil holds moisture well, and our climate is cooler than that of much of the country, so that corn rolls but little most years. I think these conditions might make considerable difference in regard to results that would follow similar culture elsewhere.

"For this reason, each locality must determine what culture will give the best success by making tests and comparisons."

Aud, Mr. Smith might have added, if a cost system that one can work is put into effect the farmer will see whether or not the effort he puts forth pays in cash.

Fred McCulloch of Iowa has been using a cost system that he thinks is satisfactory in telling him his profits and losses.

Mr. McCulloch has been figuring profits and losses for eight years, and he knows almost to the last cent what it costs to run his farm, or the cost of producing any of his crops. At the end of the year his inventory tells him exactly where he stands in a dollar and cents way. Such a system he has found absolutely necessary for the successful management of an \$80,000 investment, such as his fine farm.

By glancing at his books Mr. McCulloch can tell in an instant what it cost him to grow a corn crop on

a 40-acre field. He has found that it costs him about \$21.30 an acre to put in and harvest a corn crop of a field of 36.8 acres, and that his labor expense in growing corn for silage is \$10.13 an acre. His oats crop costs him \$5.43 an acre for labor, spring wheat \$3.98, and alfalfa \$5.17 an acre. The labor cost in growing potatoes he has found to be the highest of all, \$13.92.

Mr. McCulloch obtained an accurate idea as to his labor expense by figuring the cost of man labor at 12.6 cents an hour and horse labor at 10.5 cents an hour, but these costs vary from year to year.

A field of 36.8 acres had been in timothy the year before, and the cost of preparing the field for corn was somewhat higher, owing to the hard ground which had to be broken up. It required 85½ hours of man labor and 342 hours of horse labor to plow the field, the actual expense being \$1.26 an acre. The field was disked several times at a cost of \$1.33 an acre.

Labor Costs \$8 to \$9 an Acre

TWO harrowings cost \$0.233 an acre, the selection of seed corn \$0.196 an acre, the planting of the corn \$0.27 an acre. Mr. McCulloch used the harrow after planting at a cost of \$0.32 an acre. His four cultivations cost \$2.01 an acre, and the corn was husked at a cost of \$2.78 an acre, making a total labor cost of \$8.44 an acre. Another field of corn, 35 acres, cost but \$7.78 an acre for labor, because it had been in corn the year before and did not require so much preparation.

The cost of manure was charged at \$3.39 an acre, on a basis of 50 per cent for that crop. His seed corn cost him \$1.19 an acre, which was considerably higher than the average. The depreciation in equipment was placed at \$0.63 an acre, while taxes added \$0.69 an acre to the cost of cultivation.

This field of corn produced 2,200 bushels of corn, or 59.8 bushels to the acre, which was disposed of at 55 cents a bushel. The income received from the field, allowing 75 cents an acre for stalks, was \$33.62 an acre, leaving a net profit of \$12.32 an acre. The income a bushel was \$0.56 and the cost of production was \$0.35, leaving a net profit of \$0.26 a bushel.

Probably a system similar to this is used by Daniel Prowant of Putnam County, Ohio, for he says: "Corn growing is not a matter of luck. It depends mostly upon knowing how.

"Of course," continues Mr. Prowant, in giving his farm experience, "during an unfavorable season the grower is not to blame if his crop is poor. Yet, if the soil is handled carefully and well drained, much may be done to offset the work of unfavorable weather.

"Corn is a heavy feeder, and I do not think it well to plant the same field to corn more than two years in succession, and even this should be avoided if possible. If the grower wants to see a champion corn crop on his farm, let him test his seed corn carefully, have his ground well drained, the seed bed properly prepared, and the soil sweet and high in fertility. By getting the seed in the ground at the proper time he has a good start in that direction.

"However, a promising stand of corn can very easily be ruined later by improper handling. I prefer to plant corn on land that has been in clover the year [CONTINUED ON PAGE 21]



After stalks are a foot high, each cultivation should be shallower than the one before it. Corn stands hot weather best if roots are not torn

That Juicy Roasting Ear

Matured and Plump Seed Brings Forth Thrifty Corn Plants

By B. F. W. THORPE

NO HEALTHY American with a normal appetite ever loses his interest in and relish for a good roasting ear. The question is sometimes asked what is the difference between sweet corn, more correctly called sweet maize or sugar corn, and our ordinary field-corn varieties. The real difference is that the portion of the kernel (endosperm) which surrounds the germ, or reproductive part, of the kernel is less starchy and contains more sugar in sweet corn. This difference is sometimes explained by saying sweet corn is any one of the starchy varieties that has lost its faculty of converting sugar into starch. The best sweet-corn varieties are therefore those that convert but little sugar into starch when the corn is going through the later stages of its development.

In size, sugar corn varies almost as much as field corn, and requires all the way from 54 days in the earliest to 115 in the latest varieties to mature to the edible stage. Generally speaking, the varieties making the largest growth are the latest to mature, and vice versa.

Another important point to remember in selecting varieties is that some of the very best in flavor and edible qualities are not so profitable for commercial growing, since there is a lower yield. The standard varieties for commercial canning purposes are Stole's Evergreen, Country Gentleman, and white Evergreen. Where the growing season is shorter, some of the smaller varieties like Early Minnesota, Early Champion, and Crosby are favored. For home use and select trade direct to consumer, the following varieties have many to recommend them: Peep o' Day, Golden Bantam, Perry's Hybrid, Black Mexican, Golden Sugar (similar to Golden Bantam, but larger ears), Early Evergreen, White Evergreen, Shoe Peg, Zigzag Evergreen, Country Gentleman, and Stole's Evergreen.

Two plans are quite commonly followed in providing sweet corn for table use at just the right stage of development throughout the season. One is to plant only one or two of the favorite varieties and make successive plantings ten days or two weeks apart for about six weeks after the earliest planting date possible. The other plan is to select five or six varieties that mature successively. This plan will usually furnish a greater yield. The smaller early-maturing varieties, when planted late, will not make very good yields as a rule.

Furnish Seed at Low Cost

PRODUCERS of canning corn generally grow their own seed, or have it raised for them by contract where the seed will be known to be pure. It is quite common for canning companies to furnish seed to their patrons at wholesale rates. Sweet corn grown within 60 to 80 rods of field corn usually contains some kernels that have been cross-fertilized, and the quality is thus injured. When seed must be secured from seedsmen, the purest seed may be expected from the larger seed houses which have their seeds grown under contract by reliable seed-growing experts.

When buying or selecting sweet-corn seed it is important that the ears have the quality known as "cheerfulness"—a bright and well-matured appearance. The germ or chit should have a full, plump appearance, as the germs contain about 50 per cent of the oil and 20 per cent of the protein of the entire kernel. And unless the germ is well developed it cannot be expected to carry a thrifty corn plant to the stage where it can look out for itself. Dark cheesy-looking germs in seed corn indicate that the vitality has been weakened by freezing or unfavorable curing.

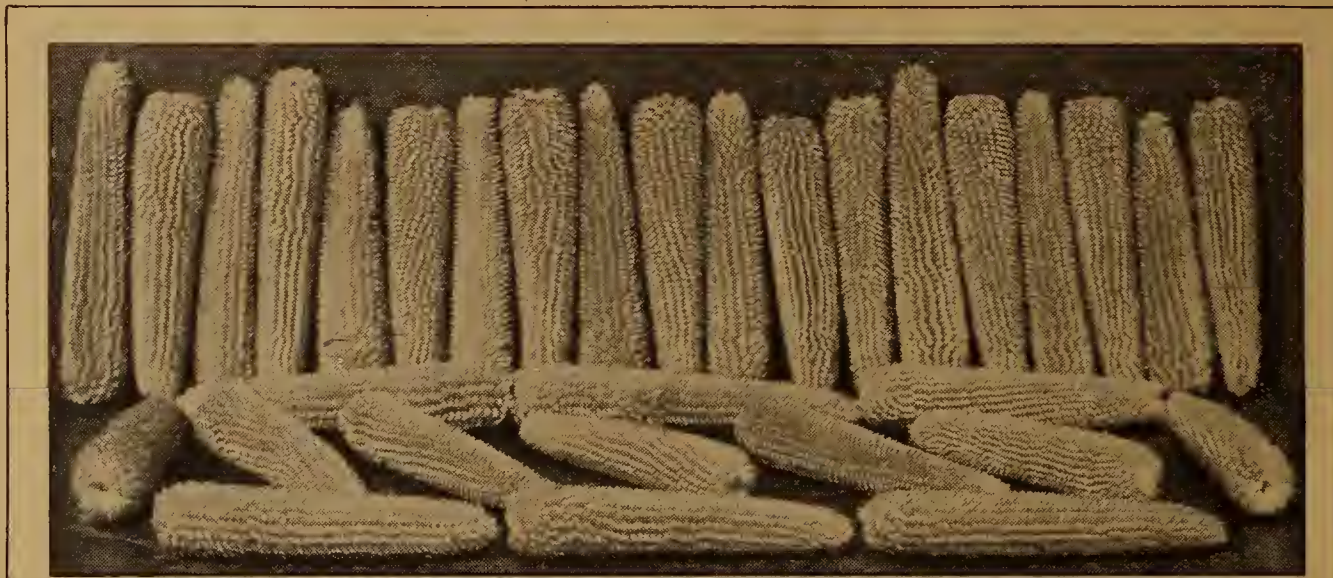
The culture of sweet corn is essentially the same as for field corn, except that sweet corn is a less vigorous plant in its germination and early growth. Sweet-corn seed, after planting, will lose its life principle and decay much sooner when planted in cold damp ground than will field corn varieties under similar conditions. There is also more need of an abundance of plant food within easy reach of the young plant in order to boost growth and furnish vigorous, quick-developing plants that will ear heavily. Unless the land is unusually fertile, from eight to ten tons of good stable manure applied to a clover sod in the fall or winter makes an excellent soil preparation for sweet corn. Most commercial sweet-corn growers use in addition from 300 to 500 pounds of high-grade commercial fertilizer, well distributed in the row when planting. Experience shows that the yield of ears of marketable quality

is increased considerably more than enough to pay the fertilizer bill, and the maturity of the corn is also hastened from a week to ten days.

Even when the germinating quality of sweet-corn seed is good, growers find it pays to plant about double the seed needed for a full stand, and later thin to three or four plants in the hill after danger to the corn from pests and unfavorable weather is past.

Good and frequent tillage of sweet corn is more necessary than with field corn during the first month of growth. The soil needs more stirring to insure warmth and conditions favorable for plant food to become quickly available. Sweet corn is less able to withstand soil acidity than is field corn, hence liming is more necessary. For the same reason better drainage is necessary. Wet soils are less well aerated and more likely to become sour.

For selling to customers or retailers a good deal depends on earliness. Sales during the first week or two of the season often return greater profits than can be had from a month's sales later in the season.



All of the score or more varieties of pop corn are variations of two well-defined types: the pearl with rounded, smooth kernels; and the rice with sharp, beak-like kernels

Grows Many Roots

Hence Pop Corn Dislikes Wet Feet

By JOHN COLEMAN

THE invention of mechanical corn-popping aids which make the process almost automatic has stimulated the demand for pop corn. These mechanical poppers prevent losses from scorching the corn, and insure a popped product that need not be touched by the hand until it is in the possession of the consumer. There is also a growing commercial use of pop corn in confectionery. It is quite possible that pop corn in some form may yet become a satisfactory substitute for some of the commercial breakfast foods. There are now hand-propelled and small-power rolling and cracking mills suitable for the preparation of pop corn and other cereals for breakfast use which are giving good service.

The successful culture of pop corn is essentially the same as for field corn except that a better preparation of the seed bed and additional fertilizing will help

push the crop to earlier maturity and heavier yield.

Pop corn, like sweet corn, especially dislikes wet feet, and requires drainage that will allow the full development of its root system. A rotation of pop corn, wheat or oats, and clover is a good insurance against soil, weed, and insect pests that soon make trouble when a one-crop system is followed.

There are a score or more varieties of pop corn to select from, but all of them are variations of two well-defined types—the pearl type with rounded, smooth kernels, and the rice type with sharp, beak-like kernels. The commercial demand is almost entirely for white or light-colored varieties. The salability of pop corn depends largely on the popped product having a snowy whiteness without any detracting of color as is the case when corn having colored hulls fails to be entirely concealed when it is popped. There is some demand in the holiday season for colored and variegated ears for decorative purposes. Also in the homes the small, colored ears are popular for the children's amusement.

Plant Hills 3 to 3½ Feet Apart

THE standard commercial pearl varieties are Monarch, White Rice, Silver Lace, and Mapledale. Of the smooth sorts, common White Pearl, Eight Rowed, and Queen's Golden are the best sellers. The dwarf varieties like Tom Thumb, Baby Golden, and other bright-colored or variegated sorts always find ready sale near the holidays when direct sale to the consumer is followed. The highly-colored sorts are popular.

Except for the largest varieties, planting in hills 3 to 3½ feet apart gives good results if not over 3 to 4 plants to the hill are saved. For varieties with the largest kernels, four quarts to the acre of seed are required. The small-kernel sorts need only 2 to 3 quarts to the acre. A quart of white rice corn contains about 7,000 kernels which will furnish four kernels per hill for a little under two thousand hills, or at the rate of two quarts to the acre.

Even more care in cultivation and weed destruction is necessary with pop corn than with field corn. The smaller plants cannot put up as successful a fight among weeds. Pop corn ripens in 100 to 130 days, according to variety, and it should be allowed to fully mature and dry out on the stalk before husking.

Commercial growers pick the ears after the

corn and cob are in fit condition, and either sell direct to elevator companies or store in ventilated cribs.

The popping quality and flavor of corn depend largely on the complete curing without any moldiness. Ordinarily pop corn is not at its best for popping until the summer following its harvest.

The leading States in pop-corn production are Iowa and Nebraska, where the total annual yield runs into hundreds of thousands of bushels. The average crop is around 40 bushels to the acre. In some sections where pop corn is being grown on contract the crop sometimes nets \$75 an acre. There is always a limited local demand for pop corn sold direct to town or city consumers in small lots. Many large cities are now getting from a distance their supply of pop corn.

The Sorghums

By C. BOLLES

WITH a few possible exceptions all of the sorghum family are hot-weather plants and should be planted after the ground warms up. Unlike corn, the sorghums take their time about growing in their infancy, and hence need help in the fight against weeds; thus any old way of planting will not always bring a big crop. For the most part folks single-disk and then follow with the lister in two weeks. The point in listing is to run rather shallow, and cover the seed just deep enough to let it germinate. The amount of seed used to the acre will vary with conditions, so that I can only say, use two pounds or more. Under certain conditions I have had a maximum yield with a pound to the acre. Grain sorghums are given the same cultivation as corn. There are four methods of harvesting sorghums, namely: by hand; corn binder, afterwards shocking and topping with a cutter into a wagon box; the common grain header; and the wagon-box header.

In the real sorghum belt they have settled down to kafir, feterita, and milo. Where corn has failed to make 25 bushels an acre over any series of five years, it would seem time to try a promising kafir. Be governed by what the neighbors are doing; also get in touch with the experiment stations.

After all, the best sorghum is the one the stock eat. New sorghums are being brought out all the time. Orange cane is our leading feed in Red Willow County, Nebraska, but it is a trifle late, so I am going to try out three earlier varieties.

My experience and my father's before me, both covering a total of thirty years' farming in the arid West, has convinced me that it pays to sow acclimated seed only.

ER



Sugar corn varies in size almost as much as field corn, and requires from 54 to 115 days to reach the edible stage

Using Corn as a Feed

Why One Grain Forms a Part of Many Live-Stock Rations

By HARRY M. ZIEGLER



Even when most of the gains are made on pastures, a corn-fed finish adds to the quality of the animals, and increases the selling price. More cattle are full-fed on pasture every year

CORN forms a greater or lesser part of nearly all live-stock rations. This is as true of the rations of the work horses, the brood mares in foal, the sows suckling pigs, the breeding ewes, as it is of the cattle in the fattening yards. Corn takes this imperial place in the concentrates fed to American live stock because it furnishes the energy- and fat-producing materials—starches, sugars, and oils—needed at a lower cost than the other grains. The culture of corn is easy; the soil and climatic conditions for its growth are wide-spread.

To please the palates of cattle, hogs, sheep, and horses, corn is served in many styles. It is fed shelled, on the ear, snapped with the husks on it, as corn-and-cob meal, corn meal, silage, and fodder. The practice of "hogging down" corn is growing in popularity.

Although corn forms the basis of nearly all cattle-feeding rations, the feeding methods and practices vary with the farming communities. What is nearly a universal feeding practice in one State, may be, and often is, much different in another. Some favor a long feeding period, using up all of the cheap roughage of the farm and using little high-priced feed, and that to finish the steers with. Others use a short feeding period, keeping their cattle in small yards and giving them all the corn and alfalfa they will eat as soon as they are on full feed. But whether the feeding period is long or short, the basis of the ration is corn.

"Corn and alfalfa was the ration I fed to this fat stuff," remarked R. A. Coupe of Richardson County, Nebraska, as he sold two carloads of 1,513-pound steers at \$9.30 on the Kansas City market in March. "I bought these steers four months ago when they averaged 1,153 pounds. They made a gain of 360 pounds. They cost me \$7.60, leaving a feeding margin of \$1.70. I had hogs following the cattle."

Corn-Alfalfa Steers Top Market

"I FED corn and alfalfa to this load," said M. T. Roberts of Adair County, Missouri, when asked about a carload of steers he sold on the Chicago market at \$8.60. The same day O. J. Falk of De Kalb County, Illinois, sold a bunch of heavier steers than those of Mr. Roberts on the Chicago market for \$9. The cattle weighed 1,301 pounds. His cattle cost \$7.50 as feeders last September.

"When it comes to cost there is no other feed of equal value to compare with corn silage," Alex. Rant of Otero County, Colorado, declared recently. "I have two silos of 350 tons' capacity on my ranch. They are filled with corn I raise under irrigation."

Fifty-one steers were sold on the Kansas City market in March by T. V. Scanlon of Dickinson County, Kansas, at \$8.75. The cattle had been fed a ration of corn and alfalfa for a period of 115 days. They averaged 1,233 pounds. Hogs followed them. A few days later, on the same market, I. E. Carr of Grady County, Oklahoma, sold 178 head of 1,210-pound steers at \$8.90. They were fed on corn and cottonseed cake.

This shows the widespread use of corn in feeding rations of cattle; that the steers bring good prices when well finished on corn; and that they will make rapid gains on such a ration.

Clinton County, Missouri, is a big cattle feeding county. While the county grows a lot of corn, thousands of bushels are shipped in to be used in the feeding operations. A great deal of corn is cut, and put in the shock. The corn that isn't cut and shocked, or isn't put in the silo, is snapped, except a small amount for the horses and mules. The snapped corn is placed in open cribs or on the ground in piles. The cat-

tle like the snapped corn better than cleaned shucked corn because it doesn't get so dry and hard.

The feeders in Clinton County buy two- or three-year-olds averaging 900 to 1,000 pounds. They buy the cattle in September or October, and run them on pasture as long as they can without the cattle's shrinking. In November, or early in December, a little roughage, such as hay and shocked corn, is fed to them. The cattle are kept in the pastures all winter. The roughage is fed on the ground as long as the ground is frozen. The poorest roughage is fed first. Beginning in January snapped corn is fed in troughs. Cheap shelter is provided. The snapped corn is increased until March or April, when the cattle are eating from a peck to a full feed of corn.

Puts on 425 to 500 Pounds Gain

IF THE feeder desires to market his cattle before the flies are bad, he then can give them a good finish on corn by June 15th to July 1st. If he desires to market his steers in July or August, he takes them off corn for 30 to 60 days. This plan of the Clinton County, Missouri, farmers finishes the steers with a minimum of high-priced feed. With good steers such a plan of feeding puts on 425 to 500 pounds of gain in 10 months.

A common practice in the corn belt is to feed steers from four to six months. They are bought in September or October when they weigh 1,000 to 1,100 pounds. They are fed in small yards. The ration is increased as rapidly as possible until the steers are eating all of the corn they will eat. This is continued until they are ripe.

Corn silage, alfalfa, clover, timothy, prairie hay, and straw compose the ration fed to many pure-bred breeding herds. The calves are fed corn, oats, bran, barley, and a little oil meal. Corn-and-cob meal is fed quite extensively during the winter months to breeding stuff.

Calves fed skim milk and corn made the cheapest gains in an experiment conducted by the Kansas State Agricultural College. Thirty calves were in the experiment, which was conducted for 154 days. Ten calves were fed skim milk, 10 were fed whole milk, and 10 ran with their dams. The skim-milk calves made a gain of 223 pounds, the whole milk calves

made a gain of 287 pounds, and the calves with their dams 248 pounds. The average daily gain ranged from 1.51 pounds for the skim-milk calves to 1.86 pounds for the whole-milk. The cost of each 100 pounds of gain for the skim-milk calves was \$2.26; the whole-milk calves, \$7.60; and for the calves with their mothers, \$4.41.

The skim-milk calves took the lead when they were placed in the feedlot. The calves were started on their skim-milk and corn diet when they were two weeks old.

These calves were fed two times a day. For the first 100 pounds of live weight they were fed 10 pounds of milk a day. The next 100 pounds, five pounds; and the third 100 pounds, two and

one-half pounds of skim milk. The milk was fed at a temperature of 90 to 100°F. Half a pound of corn a day was fed to every calf for the first two months. This was gradually increased until the last days of the experiment the calves were getting a pound of corn a day. Hay was kept before the calves after they were two weeks old. Prairie hay proved to be the best for the calves at the start of the experiment. After the calves were two months old alfalfa hay was fed to them.

Many successful hogmen have found it is best to feed a sow due to farrow a ration high in protein and rather laxative in its nature, a ration that is similar to the feed she receives when she is suckling a litter of pigs. At the Missouri experiment station good results have followed the use of a ration composed by weight of 50 per cent corn, 25 per cent shorts, 15 per cent bran, and 10 per cent oilmeal. This ration is decreased slightly as the farrowing time approaches. Eating a ration of this kind brings the sow up to farrowing time in good condition. She will not be feverish and restless. Hence, there is less danger of the sow's lying on her pigs.

When the pigs are weaned at eight to ten weeks, a mixture of corn and skim milk is fed to them. The mixture is composed of one part corn to three parts skim-milk. If the skim milk isn't available, a mixture of five parts of cornmeal, four parts of middlings, and one part tauge made into a thin slop is fed. Good succulent pastures will aid wonderfully in putting growth on the pigs.

Now the Hogs Do the Work

MANY hogs are fattened now with the aid of self-feeders. The corn, tankage, and oil meal is placed in a self-feeder. The hogs eat at will. In experiments conducted at the Iowa Experiment Station it was found that the self-fed hogs made greater and cheaper gains than the man-fed hogs. This shows that the hog will eat the proper amount and kinds of feed for its best growth and fattening if given the opportunity.

Silage is used not only for dairy cattle but for fattening beef cattle as well as horses, sheep, and hogs. Corn fodder, with a small ration of ear corn, has been used with great success by horsemen to winter horses cheaply. The horses aren't worked, and are kept in yards with open sheds. The sheds are closed on all sides except the south, and protect the horses from cold, sleet, and snow. The horses came through the



The saving of labor when corn is "hogged-down" justifies this practice

winter in good shape, and are very healthy. Often the horses are run in the cornstalks in the fall until the weather gets stormy. Then they are put in the yards.

Work horses and mules at the North Carolina Experiment Station did ordinary farm work and kept in good condition on a ration of one and one-third pounds of corn to the same amount of oat and clover hay to every 100 pounds of live weight. Ear corn was found to be a better feed for horses with good teeth than shelled corn, as it keeps better.

Mares in foal and weighing from 1,200 to 1,400 pounds will approach the foaling period in good condition if fed a ration of four pounds of corn, six pounds of oats, and twelve pounds of timothy hay. Two or three times a week a bran mash can take the place of the grain feed at night with very satisfactory results. The mashes keep the mare's bowels in good condition.

Corn and alfalfa makes a good ration for the growing colts—one-third shelled corn and two-thirds hay. This ration furnishes enough protein and sufficient mineral matter for the growing colts.

While a short feeding period for lambs isn't as attractive to persons who have a lot of roughage to be fed as a long period, the 40-day lamb-feeding experiment conducted at the Nebraska Experiment Station shows some interesting data.

The lot of 28 lambs were weighed carefully on three successive days at the beginning of the experiment. They averaged 61.96 pounds. At the end of the experiment they weighed 82.01 pounds. The average gain to the lamb was 20.05 pounds, or just a little more than one-half pound a day for every day of the experiment. The average daily ration was composed of 1.326 pounds of corn, 1.047 pounds of oil meal, and .363 pound of hay. For every 100 pounds of gain the lambs made, 264.54 pounds of corn was fed, 208.85 pounds of oil meal, and 72.41 pounds of hay. The cost of 100 pounds of gain was \$7.34. The original cost of the lambs, the cost of the feed, the interest on the investment, made the total cost \$6.754 a lamb. The lambs were sold at \$10 a hundred, or \$8.20 a lamb. This left a profit of \$1.45 a lamb.

Prairie hay was fed instead of alfalfa. This encouraged a greater consumption of corn and oil meal. The lambs were started on a full feed of pea-sized oil meal. At first they ate two pounds a day. Shelled corn was worked into the ration after the third day. The proportion of corn meal was gradually increased until the end of the third week, when the lambs were eating two pounds of corn meal and one-half pound of oil meal. The corn meal and the oil meal were fed in self-feeders. The hay was fed in racks.



Concrete feeding floors prevent waste of corn and keep hogs cleaner

Why PRINCE ALBERT



Ralph Bingham
discovers the
"national joy smoke"

gives smokers
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—why, its flavor is so different and so delightfully good;

—why, it can't bite your tongue;

—why, it can't parch your throat;

—why, you can smoke it as long and as hard as you like without any comeback but *real* tobacco happiness!

On the reverse side of every Prince Albert package you will read:

"PROCESS PATENTED
JULY 30TH, 1907."

That means to you a lot of tobacco enjoyment. Prince Albert has always been sold without coupons or premiums. We prefer to give quality! And read this:

PRINCE ALBERT

the national joy smoke

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is certainly worth your while getting on talk-terms with if you'd like to know what will please your jimmy pipe appetite *most*—in flavor, coolness and downright satisfaction to the high-top-notch degree!

For Prince Albert is tobacco made by an exclusive patented process that cuts out bite and parch and lets you fill up your pipe to your heart's content without a flareback of any kind! You'll get chummy with Prince Albert in a mighty short time.

Prince Albert is sold everywhere in toppy red bags, 5c; tidy red tins, 10c; handsome pound and half-pound tin humidors and in that fine pound crystal-glass humidor with sponge-moistener top that keeps the tobacco in such perfect trim—always!

R. J. REYNOLDS TOBACCO COMPANY, Winston-Salem, N. C.



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In the IHC binders—Champion, Deering, McCormick, Milwaukee, Osborne and Plano—these things and all other details are taken care of. Own an IHC binder.

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International Harvester Company of America

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CHICAGO

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Champion Deering McCormick Milwaukee Osborne Plano

The Editor's Letter

*New Conditions of Life Favor Adopting
Grown-ups Instead of Babies*

HOW that old phrase "blood tells" permeates our natures! And there's a good reason for it. We have the story of like begetting like constantly before us in beast, bird, and man. Of course a cog slips occasionally in the hereditary wheel, and traits and peculiarities of parents crop out in the grandchild or great-grandchild instead of the first descending generation. It is because of this belief in heredity that there is such reluctance to adopt a child of unknown parentage into one's own family. When done, the usual desire is to get possession of the child at a tender age so that its developing nature can be molded and thus overcome any objectionable hereditary traits it may possess in so far as possible.

This plan of early adoption has long been considered the safe and sane one. But it seems there is a brand-new idea on family-building abroad in the land—one that does away with much of the uncertainty of child development. This new adoption scheme avoids hereditary uncertainties by delaying the adoption until the traits, preferences, and habits have been developed and fixed. I can't help believing that there is a future for this plan of adopting adults instead of babies under our modern conditions of life. This opinion has been strengthened by a call that has just come from that great new Western Empire, the "Big Bend" country, which borders the wonderful valley of the Columbia River that has helped to make Oregon famous.

I am going to let our FARM AND FIRESIDE family take just a peep at some extracts from the letter written me by a family wanting to adopt a grown-up son into their home. In fact, their ambition is a grown son who has a wife, and there is no objection to a grandchild or two thrown in for good measure. Just read this novel advertisement sent me by the wife of the Big Bend ranchman, which they are considering publishing in some daily papers in Pacific Coast cities:

"WANTED—A son, a young man between 18 and 25 years of age. Must be tall, or at least of average height; strong and of good health; willing and able to work hard on a large farm. A daughter-in-law and grandchild or two no objection. References required as to character and health."

This advertisement came with the request that I should give them my opinion of such a plan for finding a suitable young man or husband and wife who would become an interested member or interested members of their home—in fact, a bona-fide part of this rancher's family, to share their labor, privations, and the fruits of their labor. Later, if the adopted son and family prove congenial, dependable, and worthy, the farm improvements, equipment, and increase of valuation would be shared equitably with the children of their adoption. I confess, this idea of adopting a grown-up heir jolted my sensibilities at first. But the more I study the plan the better it looks for some childless farm homes.

Four Hundred Acres at Stake

Suppose the ranchman and wife in question should adopt two or three baby boys. They would be merely adding to their present overburden, and when the boys reach their majority, or even before, they could have no certainty that they would be willing to cast in their lots on the farm. This overburden of work in farm life has reached the acute stage in innumerable cases. Go where you will and there will be found good farms suffering for interested, painstaking labor and skill. Weary, worn, and disappointed farm owners and their wives are trying to accomplish double and triple duty rather than suffer the constant annoyance and losses resulting from unreliable, unskilled farm workers who cannot be induced to take a personal interest in their work. This strain of overload often converts what might be a life of enjoyment into a treadmill. Is it any wonder then that this childless ranchman and wife, with good land enough for four or more, are longing for an adopted son and daughter ready with strength and ambition to share the burdens and rewards from their broad acres?

But let this ranchman's wife present their case a little further:

"We have 400 acres lying between the Big Bend wheat country and the Columbia River bottoms. Over 100 acres are now in alfalfa and corn, and doing well. More of this good land can be broken, and there is a good chance for irrigation just as soon as the place can be operated on a scale that will pay for putting in the water system. My husband and I are

tackling this big proposition all alone, except for such transient help as can be secured occasionally. It only needs one look from a practical farmer to convince him what generous return the near future can bring to the owners of such land as ours when it is farmed properly. We are not old and worn-out, but our present pace will soon make us old before our time. What we must have is help that will take the same interest in developing this ranch that we, its owners, do, who realize what it can be made to become. It is for this reason we want to adopt a son who has a wife and perhaps one or two small children—someone who can look into the future and who is willing to work and wait with us a few years for the results of our co-operation, planning, building, and toil. The reward is as sure as God's promise to his children of old. But to us who are childless and overhurdled the years ahead are not inviting."

Like the Big Bend Country

Isn't that a fine, strong exposition of the need of co-operation? These childless parents, with their capital practically all tied up in their big ranch, are almost at a standstill so far as getting ahead is concerned. They are handicapped by the lack of interested constructive labor and initiative. This ranchman and his wife feel confident that there are scores of ambitious young married couples who have just the qualities they need, and who are longing for an opportunity to work out a future for themselves and their children in the country. Then came the thought of adopting a son, a man grown, with a wife, both ready to form a family co-operation with them for developing a farm and home for them all. This ranchman knows after several years of laborious experience just what the requirements are to insure success with their farm lands. He has studied crop culture, stock, and irrigation in relation to their particular conditions, and now believes that joining forces in labor and development will be more satisfactory and enjoyable than to live their lives for themselves alone.

Note the concluding paragraphs in this Big Bend home-maker's letter, which compels implicit faith in the writer:

"We now own this fine ranch in its undeveloped state, and have two unpretentious but comfortable houses, two small barns, some horses, cows, hogs, chickens, and farming equipment. In other words, we have here a substantial foundation for an ideal ranch home, and have already made an encouraging start toward its realization. But however homelike we may succeed in making it, we shall not need it always. Then why is it unreasonable for us to expect to find someone who will make a congenial part of our family and with whom our labor and responsibility can be divided? We are in love with this goodly Big Bend country, and our farm is none too large to be operated to good advantage, but it needs congenial, co-operative effort between two families to realize the best results.

"I can't help but believe that in some city flat there is now a true-hearted, honest but discouraged farmer's son who has become convinced that he made a mistake when farm life was forsaken for the city. His dream of fame and fortune has not come true. Wife and children are shut up in cramped, poorly lighted rooms without lawn, garden, or flowers, and his future gives promise of not much improvement. Have we not the right to expect that such a farmer's son, his wife and child or two, will be ready and glad to be adopted into our family? With us they can be sure of rentless shelter, food, fuel, and an assured modest competence for the future, depending solely on persevering industry and intelligent planning and labor in conjunction with our own."

This whole matter is just another case where there is need of capital and labor getting together in a fair, friendly, and efficient way—in a word, co-operation.

Henry Wallace, that kindly, wise, and stimulating apostle of "good farming, clear thinking, and right living" who suddenly finished his work a few weeks ago, defined the term co-operation as "applied Christianity." That definition ought to help to establish the co-operative movement on a truer, firmer basis. In the case of this ranch family there is evidence that they have come to believe in Uncle Henry's definition of co-operation, which, after all, is but another term for the Golden Rule established for our welfare two thousand years ago.

The Editor

The New South

Where Fertile Acres and Rice Build Fortunes

By M. G. MOORHEAD

THE work of bringing the old lands and the new lands of the South under cultivation is undergoing a marked change. The task is no longer so much an individual one as it is a co-operative or communal one. Two factors are primarily responsible for the change: the capital required and the difficulty in securing efficient labor.

Take the case, for instance, of the Grand Prairie of Arkansas, where the culture of rice has revolutionized conditions within the last six or eight years. Land which will produce from 40 to 80 bushels of rice to the acre, selling for 65 cents to \$1 a bushel, can be had for \$20 to \$60. Sometimes one year's crop pays the original price of the land. The lure to the northern farmer, accustomed to no more than 40 to 80 bushels of 60 to 70 cent corn to the acre on \$150 to \$200 land, has been more than he could resist. The result has been such an influx of Northern farmers to the Grand Prairie of Arkansas, within the last five years, as was never witnessed in all the South before.

But the price of the land has not told the whole story. Unless the grower who has thousands of dollars invested in his crop can command the necessary help to harvest and save his crop, his hair is pretty sure to turn gray while he is yet a comparatively young man. The labor problem has been, is now, and will long continue to be the bugaboo of the Southern farmer or planter. Farms give way to plantations and porches to galleries once the traveler is a few hundred miles south of St. Louis.

Well handled, no labor is more reliable or more efficient under the existing climatic conditions than the negro. The trouble has been heretofore in the handling. By giving the black man exactly the same food, care, and pay accorded to his white help, Fred Gibson of Stuttgart, a young farmer whose record is one of the chapters in the story of the agricultural South, has succeeded in solving the vexatious labor problem. On a full stomach the negro works as well in the fields as any white man. It is only when he comes in from the hills, carrying his own bacon and biscuits in a bag, and attempts to sustain his strength on insufficient and improper food, that he lags behind and becomes worthless in comparison with the white man. In this finding Mr. Gibson is corroborated by Gerald Fitzgerald, manager of what is declared by experts to be the finest fruit farm in Texas, the Ferris Farm, near Morrill.

But the rice farmer of the Southern uplands, to take his case first, does not find his problem ending with the question of help. The land is cheap, it is wonderfully fertile; but there must be irrigation for the growing of his staple crop. There are millions upon millions of acres of latent rice land in the Grand Prairie, underlaid by an apparently inexhaustible sea, to tap which and secure a ceaseless flow of sparkling pure water, 1,500 gallons to the minute, requires but the services of a civil engineer for the determination of the highest point on the land and the laying out of mains and laterals and a force of well borers. But all this requires money, and the Northern farmer who has sought to make himself a rice king with less than \$10,000 to \$15,000 to his credit has been up against it proper. At least, that has been the case in the past; now the story is becoming a different one.

Several Farmers Work Together

WHAT has been impossible or herculean for the individual is easily accomplished by several individuals—the majority of them even without capital—working together. Take the case as proved at Hickory Ridge, for example: A transplanted Northerner, C. W. Pittinger, has hit upon a plan of share-cropping which promises to revolutionize the whole problem of rice-growing, and to set an example for all the South as well.

The farm upon which Mr. Pittinger is working con-

sists of 1,722 acres of virgin land, 600 acres of which are cleared and in splendid condition for cultivation. The greater part of this land is being cultivated by five tenants, under Mr. Pittinger's direction. He furnishes the land, the water for irrigation, the heavy implements, the seed and one half the bags for holding the rice, and does the threshing for two cents a bushel, which is just half the regular price. The tenant furnishes his own teams, performs or furnishes all labor for planting and harvesting the crop, and gives Mr. Pittinger one-half of the product. This arrangement enables the man with capital to devote his entire time to the general management of his property and relieves him of the necessity of personally overseeing the details of the labor. It also makes it possible for the man with limited means or small capital to become a rice grower and, if he is thrifty, eventually to own the land he is working upon.

The land, for the most part, is divided into tracts of 80 acres each, the original subdivisions so located that the five tenant houses and adjoining outbuildings are adjacent to each other, making a community center which robs the farm life of yesterday in the South of most of its loneliness and isolation. Mr. Pittinger proposes to extend his clearing until he has from twelve to twenty families thus living close together around a common center, and working the land on shares, he furnishing the necessary capital, they the labor, the division of the proceeds being equal.

Forest Becomes Cultivated Farms

IN THE same neighborhood, on the Grand Prairie, a slightly different plan of colonization has resulted in the little town of Otwell—practically nothing more nor less than a community center in the midst of fertile rice lands—gaining a population of 200 in three years, with a flourishing school, the enrollment of which is 96, occupying a proud and commanding position in the center of what, up to three years ago, was virgin forest but is now cultivated farms. Thousands of acres of raw land have been disposed of at \$25 an acre—payable \$2.50 down and the balance in five years—while two-acre garden tracts by the hundred have likewise been sold on easy terms to those whose means did not permit them starting out on a more elaborate scale. The idea back of the Otwell colonizing plan was to establish a colony for boys and young men, the sons of farmers owning \$100 to \$200 land in the North who pined for an opportunity to start out for themselves on cheap land, as their fathers had done many years ago.

Of all the colonizing plans, upon which the South is now leaning so heavily for its long-deferred development, perhaps none is more novel than that which has recently put the townsite of Mackinaw, Louisiana, upon the map. A tract of virgin forest was divided into 2,800 units of varying sizes, sold for \$35 a unit, without regard to size, location, or condition. One of these units consisted of 500 acres, two others were of 250 acres each; the others ranged downward to two acres, with a number consisting of lots in the townsite which the promoters cut in the dense forest, laying out a wide street from the railroad tracks a half mile long,



This comfortable house was the first one built in Otwell, which three years ago was a wilderness

ending in a clearing where stores were built and houses erected in anticipation of the coming of the settlers. The units were disposed of by a land-drawing, similar to those by which the Government disposes of its Western lands, a little girl drawing numbers from a closed receptacle and the lucky persons choosing from the various units—ranging from 500 acres to 50-foot lots—according to the order in which their numbers were drawn. A trainload of 105 settlers, which recently left St. Louis for the new colony, testifies to the interest.

Still more resultful is the plan which has brought 1,000 acres of splendidly fertile and productive fruit lands under cultivation near Bullard, Texas, within the last three years, and resulted in a colony of more than 300 people being gathered together in a community of interests—industrial, social, and religious. The cultivated land, together with 500 acres of forest, is owned by the Metropolitan Institute of Texas, affiliated with the Metropolitan Church Association of Illinois, the latter coming into existence a score of years ago as the result of a series of revival meetings conducted in Chicago by two well-known Chicago business men, D. M. Farson and E. L. Harvey. Headquarters have been maintained for many years at Waukegan, Wisconsin, but the realization that among the 700 communicants were many from the farm, who longed for a return to the land, led to the purchase of the 1,500-acre tract in east Texas, and the removal of one half the communicants there. One trainload of colonists numbered 178 persons, of whom 154 were adults.

Thus, in a diversity of manners and in countless locations, the new plan of co-operation, of "getting together" for the general good, is being used to bring the old lands of the South under cultivation. The task of bringing about a new order of things, where so much is old and firmly established, is a big one for the individual, but comparatively easy of accomplishment for a number banded together with mutual interests and aspirations.

Raising Big Crops

By WALTER MOTT

THE cotton and corn yields were more than doubled on the 2,600-acre Como plantation near Yazoo City, Mississippi, by proper drainage, deep plowing, and more perfect tillage methods.

Eleven hundred bushels of corn and 107 bales of cotton were raised on the plantation with 1,500 acres in cultivation during 1911, the year before the change in cultural methods was begun.

In 1912 the crops of the Como plantation, with nearly all of the land under cultivation, amounted to 175 bales of cotton, more than 5,000 bushels of corn, and enough hay and other roughage to feed the live stock for a year.

Two hundred forty-four bales of cotton and 6,500 bushels of corn, 150 tons of hay and a small herd of hogs were raised during 1913.

The 1914 production totaled 342 bales of cotton, 8,000 bushels of corn, 150 tons of hay, \$650 worth of hogs, and enough meat and lard to supply the manager of the plantation for a year.

A plan of drainage was laid out when P. C. Mitchell took charge of the plantation. Through the plantation was run one main ditch with the level bank, and to this one main ditch the others were directed. The banks were all made smooth so that in plowing the plow would go right through the ditch and keep it clean and free from grass and weeds.

When the planting preparation began, all the land was broken up with a plow. From five to nine mules were hitched to the plow. Over this deep plowing the disk harrow was run. This pulverized the seed bed. The corn was planted with a section planter, two rows at the time, so that the corn could be cultivated with a riding cultivator.

The cotton was planted with the planter, and it too was worked at first with the cultivator. The cultivation of both corn and cotton is done with what is known as the shallow cultivation, thus preventing an unnecessary evaporation of the moisture in the ground. It has been demonstrated clearly that most of the wilt in cotton is caused by the breaking of the surface roots. This causes the cotton to wither and shed much of the product.



Rice is a profitable crop, but it takes a lot of capital to produce it. The new co-operative farm plan is solving the capital and labor problem. This field yielded nearly 100 bushels to the acre

FARM and FIRESIDE

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Market-News Service

THE U. S. Department of Agriculture is prepared through its Office of Markets to give information concerning perishable crops. Branch offices have been established in New York, Boston, Philadelphia, Buffalo, Pittsburgh, Chicago, St. Louis, Minneapolis, and Kansas City. Government representatives are also located in the trucking sections of Florida, Louisiana, and Texas.

The reports deal with shipments, receipts, and general conditions of such perishable crops as onions, tomatoes, and strawberries. Altogether sixteen crops are to be included in the reports. To all who will pay telegraph charges the information will be sent by wire; to others the information will be mailed. The chief object of the service, which began in March, is to prevent the glutting of markets. Applications for the service and inquiries for further particulars may be addressed to the Office of Markets, Washington, D. C.

"Something for Nothing"

HAVE you been a victim of this scheme? A so-called co-operative organization offers automobile owners the opportunity to secure standard makes of tires, supplies, and various accessories at exceedingly low prices. First you must join the association, which is done by paying an annual fee of \$10. Then you receive a catalogue which is similar to the catalogues of prominent accessory houses, but it contains a discount sheet quoting prices in some cases lower than the cost of manufacture.

But when you send in your order for the standard goods listed you receive a reply that they are "just out" of those goods, and you are urged to purchase an unknown brand which they carry. The joker in the whole scheme is a little clause in the contract which says that they will furnish the standard goods "when in stock."

Many representatives of one of these organizations in Canada were tried on the charge of fraud, and pleaded guilty. The American Automobile Association reports the existence of similar associations in this country.

Land Needs Red Clover

MICHIGAN'S acreage of red clover in 1914 was one half what it was in 1897. Ohio, also, between 1897 and 1911 reduced her red clover acreage one half.

When in the columns of this paper not many issues back the story of Japan clover on one Southern farm was told, letters came to the editor's desk from all parts of the United States asking about the best way to grow this clover, called on the market Lespedeza. A surprisingly large number of these letters came from the Northern States. The call for this new clover in the North must mean that there are many failures with the red clover previously grown. Japan clover is not a clover for the North, but red clover is. Why not grow more of it?

This question was asked of a man who has farmed for many years, and he replied that most men were not willing to

pay the price for a good stand of clover. And what is the price?

Plenty of lime in the soil, phosphorus and potash if needed, humus to make the soil light and airy, a well-prepared seed bed on well-drained soil, and then the seeding, by drill if necessary, of the best seed available.

Finding the New Crop

IN CHESTER COUNTY, Pennsylvania, crop experts tell us conditions are such as to make it practically impossible to grow oats with profit. These crop specialists think that what is true in this one county will be to an extent true throughout the East. Men have been growing oats for grain and losing money.

The advice which is being given to the farmers of this county is to change to an annual hay crop in place of the oats; or if oats are raised, to cut them for hay rather than to harvest them for grain.

This advice cannot be made general in application, but the need for change in this county does call our attention to the fact that in other communities changes in farming practices may be advisable. It takes close study to determine what those changes should be.

Fly-Poison Dangers

MOST fly poisons contain arsenic—a deadly and rapid poison. In view of the extent to which such poison is kept in saucers about many houses during fly time, let us bear in mind that the pranks of children never cease. In the past two years seventy-two cases are on record of children being poisoned by playfully drinking the contents of saucers set out for flies.

Some of the children died, but most of them, having prompt medical treatment, recovered. Michigan now has a law regulating the sale of fly poisons. But a matter of this kind is often successfully coped with if the attention of intelligent people is simply called to the danger. We are not condemning fly poisons, but simply urge care in keeping them out of the reach of youngsters.

A Pioneer Poultryman

WHEN the entire field of American poultry specialists and investigators is rounded up, the palm for greatest and most varied accomplishments unquestionably belongs to James E. Rice of Cornell College of Agriculture. He has devoted years to continued exhaustive experimental and demonstrative work covering practically every phase of economic poultry culture. His work with several popular breeds to show the importance of constitutional vigor in breeding stock deserves country-wide attention in every poultryman's operations. Of



equal importance is his experimental feeding work carried on for years.

Of late years poultry specialists have followed with great interest the work of Mr. Rice in demonstrating how hens may be bred to secure high general average egg production for four or five years. Six of the highest producing White Leghorns in his experiments made an average of 225 eggs each during their first three years of production.

Relief to Stockmen

ALL Fools' Day ushered in a sense of relief to American stockmen which they had not fully experienced for eighteen months. Since October 15, 1914, foot-and-mouth disease has been a blighting reality to thousands whose herds were stricken and a nightmare to other thousands expecting this plague disease to devastate their premises. During the epidemic, 22 States, including 269 counties and the District of Columbia, were under federal quarantine. The stamping out of this most infectious of animal diseases from nearly half the States in the Union in a year and a half marks another convincing accomplishment to the credit of Uncle Sam.

Denmark, with an area of half that of Indiana, tackled the same job about the time we did, but there the end of the fight is not yet in sight. The former policy of slaughter could not be carried out in Denmark.

If the ravings of a few malcontents had been listened to and government quarantine and slaughter measures had been relaxed at their behest, the contagion of foot-and-mouth disease would now be lurking on practically every farm containing cloven-footed animals in this country. We shall not hear so much about "Down with the slaughter policy!" in foot-and-mouth epidemics hereafter.

Our Letter Box

Pur of Dynamo, Music

EDITOR FARM AND FIRESIDE: I am a rancher's son born twenty-one years ago in North Dakota. Although I have deserted the farm, I shall return, as I love the prairies and the clean open places. At present I am in the electrical and auto business, and am happy, which is the main thing after all. To me the pur of a dynamo or the droning of a fine engine is the sweetest music in the world. I believe we should all do the kind of work we like best and have the most interest in. No one will make a success of work he has no interest in except to see pay-day roll around. To the boy on the farm I would say, "Stay where you are, for the city is a place to beware of if you go there to look for a job."

The country has its faults as well as its good points, but the latter are by far the most numerous. The solution to the farm-labor problem is hard to see. The main thing is to make farm life so interesting that the children will never think of leaving the country. This is not easy to do, but if it is begun in childhood it can be accomplished.

FRANK C. JOHNSON, North Dakota.

Cement Roof Successful

DEAR EDITOR: I read with interest Mr. Stockwell's article on the use of cement. I wish to say that for several years I have been using cement for roofing and find it most desirable, especially on flat roofs or close to trees where the leaves and shade would injure wood, besides being fire-proof.

I simply put on close sheathing so as to make surface even, then spread a good grade of tar paper over it with a few nails to hold it on, then spread my cement one-fourth or one-half inch, as desired. Hope some of your readers will try it. JOHN B. CLOTWORTHY, New York.

Neat Grocery Swindle

DEAR EDITOR: One more swindle, please, for the benefit of those farmers who think gold grows on the front doors of grocery stores. This experience occurred to me while in the grocery business at Deshler, Ohio. I am now a farmer living in Michigan, and know better.

One beautiful August day a fine gentleman came into my store, which was a common occurrence in that thriving railroad town. He asked me if I was the proprietor, which naturally attracted my attention. I told him I was, whereupon he introduced himself and stated that he was the advance agent for a show, naming a good, reputable show company known to us.

"Now," said he, "I have sized up your town and decided you have the most prominent grocery in it." To which I also agreed with some degree of dignity and pleasure. He stated that the show would arrive Saturday evening, which made it necessary to place an order for groceries in advance, which all seemed very natural. He therefore gave me an order for \$100 worth of provisions. The

only condition he made was a bonus of \$4, half at once and the rest I was to pay when the goods were delivered, whereupon I was to be paid my \$100.

In order to hasten matters he said, "Of course if you do not feel inclined to do this, any of your competitors will jump at the chance." I thought so too, and then and there parted with my \$2. The show hasn't come yet, and that was more than five years ago. But who would have done differently? C. C. C., Michigan.

Wants Holiday Mail

EDITOR FARM AND FIRESIDE: In years gone by you ably advocated the establishment of the rural mail service and parcel post, which we have all seen and realized as one of the greatest blessings that came as a reward of the unceasing efforts of those who, like you, stood for the farmer and the betterment of his condition.

We have the rural free delivery well established in most all sections of the country, and the service is excellent in most respects, but there is one very defective place in this service that could and should be righted. That is the laying off of the R. F. D. carrier on every national holiday with full pay, while the people suffer and are deprived of their mail.

What town or city would tolerate the stopping of all mail service on every legal holiday (and they are many) without a great howl and protest? The R. F. D. carriers are well paid for their services and they should either carry the mails 313 days in the year or their substitutes should do so. The poor star route men wade through mud and water day in and day out, holiday or no holiday, with very poor pay, and if one trip is not made the Government cuts their pay, and if the act is repeated other punishment is likely to follow.

I am sure the rural population of our great country does not want nor will they demand anything unfair at the hands of our Government, but they should not be discriminated against because they have no organization with which to press their claims, like most all other classes have.

Since the establishment of the rural mail-carrier service many post-offices have been abolished and hundreds of people on every route in the country are absolutely shut off from all mail facilities on the legal holidays, such as New Year's day, Washington's birthday, Fourth of July, Memorial day, etc.

If journals of wide circulation and influence, like FARM AND FIRESIDE, would take this subject up and air it as it should be, and use their influence to correct this injustice, it would soon be done, and an everlasting and grateful public would shout hosanna to you for generations to come, and the Government certainly would not be the loser thereby.

B. E. REEVES, M. D., North Carolina.

Subsoiler for Small Fields

DEAR EDITOR: I have been much interested in your articles on farm tractors, and am writing this with the idea that it will help the manufacturers to know what a farmer thinks he wants. I have a 66-acre farm of clay soil, 40 acres of which are tillable. I am planning to divide it into five fields of 12 acres each, and rotate the crops.

I want to tell you of an experience I had a year ago last fall. I wanted some ground to fill in in front of the house, and I took it from a space six feet wide, five rods long, and five inches deep in a field where I was to sow wheat. Then I plowed it again good and deep, and that was the only place in a seven-acre field where there was any wheat to speak of. For this reason I should think it would be a good plan to have a two-bottom tractor plow so arranged that one bottom could be removed and a subsoiler put in its place.

If this kind of a plow could be raised and backed into fence corners it would meet the approval of many farmers who have eight to ten acre fields.

BOYD B. BAILEY, Illinois.

Roses Abundant

DEAR EDITOR: I have FARM AND FIRESIDE roses in two-year lots. Chrysanthemums are also progressing beautifully. Last summer and fall I was treated to lovely rare blossoms. We cannot have too many of FARM AND FIRESIDE's lovely flowers around the dear old porch, and all helping to build up sacredly the words home and mother. The paper is equally as pure and clean in literature, and is ever a very welcome visitor to our family circle.

MRS. SUSIE MATTINGLY, Indiana.

Pleases the Whole Family

DEAR EDITOR: Our entire family, from eight years to forty-eight years, feel we can't do without FARM AND FIRESIDE.

J. F. P., Ohio.

To Light Your House and Barns

To Cook Your Meals



Carbide Lighting and Cooking Plants Now Out-Sell All Others

You Will Now Find Carbide Lights in houses, barns and out-buildings on over a quarter of a million farms—and

Carbide Gas Cooking Ranges and Hot Plates in most of the kitchens of these same farm homes.

This means—that in the struggle for the "survival of the fittest," Carbide-Light-and-Cooking Plants have won first place.

The Reason is Plain

For fifteen years, country home families have been testing lighting plants of many types. Literally hundreds of different kinds have been given thorough trials on thousands of farms.

The competition has been strenuous — many have fallen by the wayside—a few of the best have survived—and one "The Carbide Plant" has grown to out-sell all the others.

Carbide Light and Fuel Plants are comparatively inexpensive—they are built to last a life time. Their parts are simple and heavy—they don't wear out and they call for few or no repairs.

Carbide Light Plants, the modern kind, are automatic—they work only when the lights and stove are "going"—they start and stop themselves—they merely require occasional filling and cleaning, and they operate without care for weeks, and even months at a time.

Filled with UNION CARBIDE these plants supply brilliant light to every room in the house, and gas for the cooking range in the kitchen. The lights can, too, be equipped to turn on without matches—and are specially adapted for use in barns and out-buildings.

In short, Carbide Light Plants give you not only ideal light for country home requirements, but gas for cooking as well—both conveniences equal to the best used by the cities' millions.

Consider then all these advantages—the double value of light and fuel, as against light alone—the advantage of

weekly or monthly attention as against *daily attention*—the advantage of simple heavy parts as against delicate complex parts—the advantage of parts which last a life time as against short-lived parts which call for constant repairs and renewals, and last but not least, the advantage of lower cost—not only low first cost, but inexpensive maintenance and inexpensive operation.

All told, there are some twenty reliable manufacturers of efficient Carbide Light and Fuel Plants in the United States. The plants made by these manufacturers include—those installed in cellars, those made to set in holes under ground, and those which set on top of the ground.

Our own business is confined to the sale of UNION CARBIDE which all of these plants are built to use. For the country home trade we carry immense stocks of UNION CARBIDE in our own distributing warehouses, located in every section of the United States. From these warehouses we ship the Carbide in hundred pound "drums" direct to most 300,000 country home customers. Kept in these drums the Carbide lasts indefinitely.

While we do not sell the Carbide Plants themselves, we are of course, vitally interested in helping our future customers get plants that will give the greatest possible satisfaction. To this end we are always glad to furnish confidential advice, and mail free of charge authoritative printed matter telling just how Carbide Light and Cooking Plants work, and how easily one can be set up on any country place. Address your letter to—

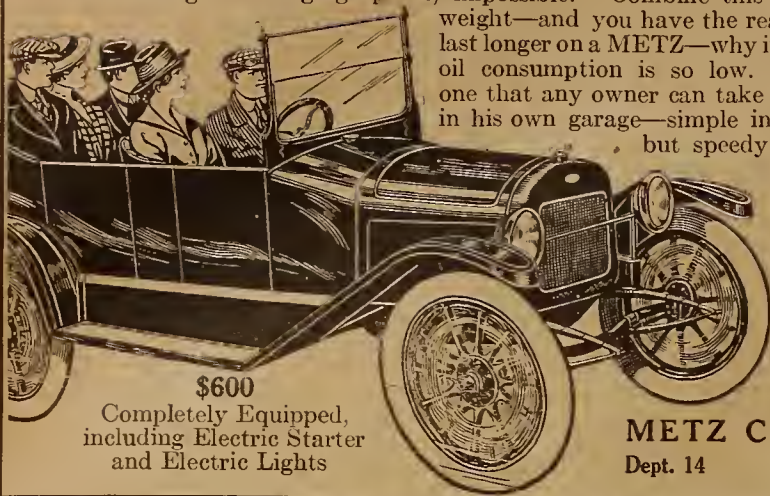
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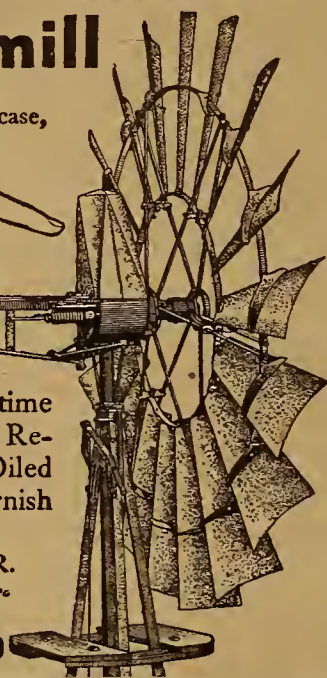
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and flooded with oil from the supply in the gear case, which needs replenishing only once a year.

Put your old Aermotor wheel and vane on this self-oiled motor, and have an up-to-date outfit at small cost.

**DUPLICATE GEARS
RUNNING IN OIL**
Oil Annually
**EVERY BEARING
FLOODED WITH OIL**

This helmet keeps out rain keeps out dust keeps in oil



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IT NEEDS ATTENTION ONLY ONCE A YEAR.

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Dairy Burdens

Oppressive Regulations Must be Lifted

By JUDSON C. WELLIVER



WASHINGTON, D. C.,
April 24, 1916.

FOR several years it has been apparent that something must be done to save the milk industry, or the time will come when, no matter what the price, there will not be milk enough to go round.

The farmer who produces the milk has been getting the bad end of the transaction. He has been the victim of a good deal of nonsensical regulation and inspection. Without doubt, the consumer has profited in the improvement of milk, but he has paid enough more for the added quality to justify the farmer in expecting a better price for his product.

The consumer is paying about twice as much for milk as the farmer gets for it, and the primary price, generally speaking, shows no advance commensurate with the increase in the cost of production. We hear a lot about the increased cost of living nowadays; it is increasing for Bossy as well as for the rest of us.

Officials of both the federal and the state dairy departments have been startled at the number of small milk producers who are going out of the business. Only a few years ago a large proportion of farmers kept from a half dozen to a dozen milk cows because they afforded a steady cash income month by month.

Nowadays these small dairy operations, conducted as auxiliaries to general farming, are being made well-nigh impossible by the conditions that the health authorities impose. It is proving impossible for the farmer to maintain the expensive improvements and equipment that are dictated. I was somewhat shocked to have a dairyman tell me recently that he had been frankly advised by the health authorities of one large Eastern city not to go into dairying unless he was prepared to invest from \$30,000 to \$40,000 in his herd and equipment.

Plenty of dairymen have been coming to realize that this is approximately true, but this is the first instance in which I have known the inspection authorities of a city frankly to discourage smaller dairy projects.

Some experiments that have lately been conducted by both state and federal dairies have inspired serious doubts whether much of the regulation that is imposed by city and state authorities really helps the quality of the milk. In a good many instances, at least, it seems to have been pretty thoroughly established that they merely make the milk more expensive and discourage the farmer about producing it.

This business of regulating the production of milk has now reached the point where it can fairly be said that if the sort of regulation now in vogue is necessary to get a good quality of milk, then the small milk producers will have to go out of the business.

Recently a huge row was started when Congressman Linthicum of Maryland introduced a resolution directing attention to the fact that the Bureau of Animal Industry has reported that over 94 per cent of creameries are insanitary; that a large percentage of dairy cattle are afflicted with tuberculosis; and that infected dairy products spread disease.

Standards Vary Too Much

In view of this sensational report of the Bureau, Mr. Linthicum demanded the appointment of a special committee to investigate the whole question of whether conditions are so bad, whether the public health is menaced by them, whether public inspection and supervision are necessary, and, finally, the best methods of establishing such inspection and supervision.

After a fashion, Mr. Linthicum's assumptions were justified by a bulletin which the Bureau of Animal Industry had issued. The bulletin, however, did not by any means picture conditions as being so serious as the bald statements of the Linthicum resolution suggested. The milk producers of Maryland have for a long time been protesting against a good many regulations that are imposed on them, and Mr. Linthicum's purpose was to determine whether these regulations do anybody any good.

Congressman Lewis of the same state has introduced a bill which, if passed,



Mr. John Smith,
Farmville,
U. S. A.

may be expected to do some substantial good. It provides for the appointment of a commission to establish standards of quality and conditions of milk and

cream, to adopt uniform rules and regulations governing the production and handling of milk and cream, regulating the inspection, testing and analysis, and determining the respective responsibilities of shipper and consignee for the condition of the products.

The commission is to be composed of three men, one a bacteriologist, one a chemist, and one a practical dairyman. The real purpose is to find out whether the kind of regulation and inspection that is now provided is worth what it costs. Different cities have different methods; the States do not agree; the Federal Government has standards which are different again; in the same city or State one official will establish certain regulations within his discretion and require dairymen to adjust themselves to these.

When he goes out of office, as likely as not, another will succeed him who will go at the whole proposition in a different way and impose a widely different set of conditions upon dairymen.

New Inspectors; New Rules

Take for example the score cards on which inspectors set down their ratings of dairy establishments. One town has one score card, another has another. It seems reasonably apparent that if the score card really bears any relation to the quality of the milk, then there ought to be a uniform and standard score card for the entire industry.

For example, if ventilation is entitled to score ten points on a Maryland card, it seems unreasonable that it should score only five on the card of some other State's inspecting department. Yet there are just such rank discrepancies, and they naturally arouse suspicion that the whole business of regulation is inaccurate and haphazard.

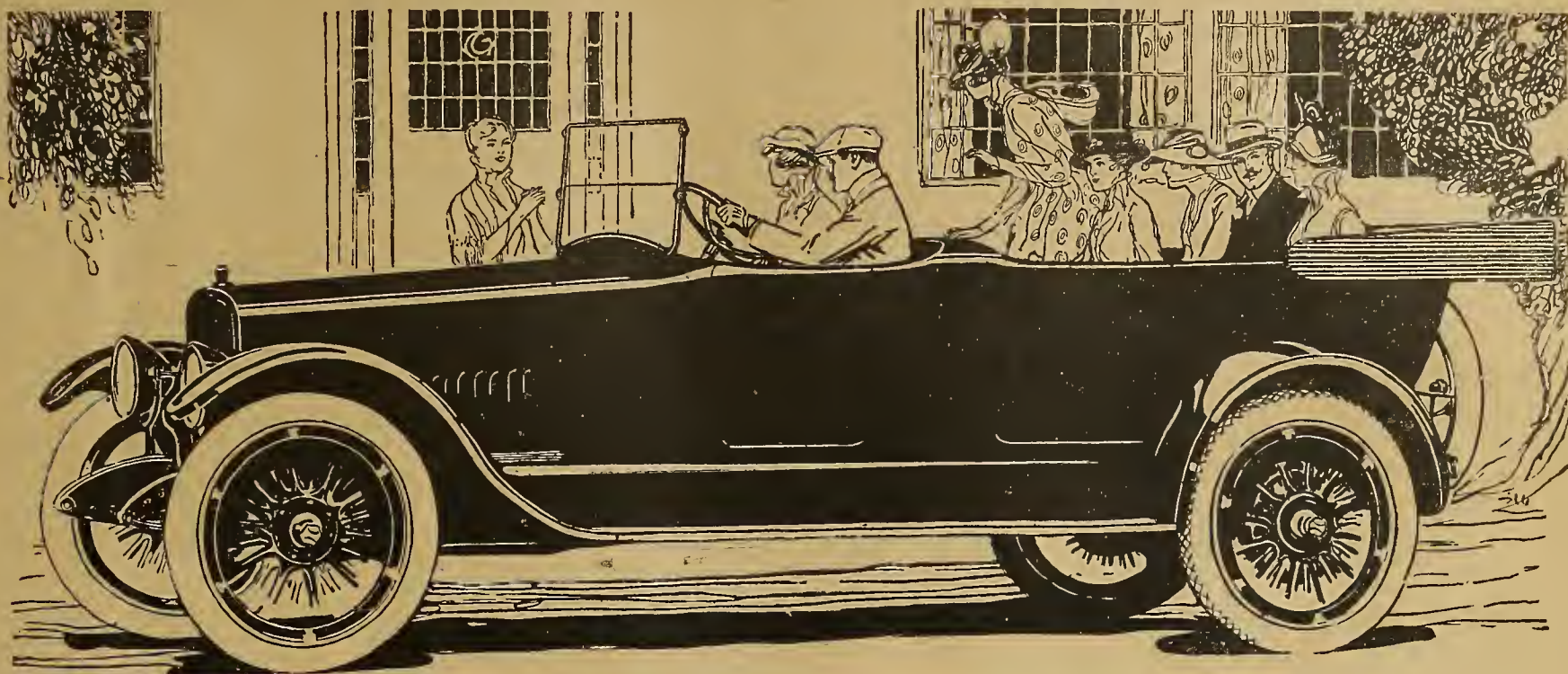
I have known dairymen to ask for the advice and direction of the inspection authorities before making extensive investments in betterments. In some cases, at least, they have been unable to get any constructive assistance whatever; the authorities would simply reply that when the establishment was in operation it would be inspected and given the rating it deserved.

This sort of thing is not only exasperating but extremely expensive to the farmer. When it is aggravated by the fact that this year's inspector may require the maintenance of one set of conditions, and that his successor next year may radically change these and require more or less radical reconstruction of barns, milking-room, dairy houses, and the like, the farmer is likely to be overcome with the intensity of his disgust.

One of the best-informed dairy experts in the country also assures me that within the last year there has been in some sections a decided reduction in dairying because of the more attractive opportunities of general farming. This same authority declares that unless relief is secured for the dairy people this condition is going to be much more marked in the next few years. He reasons that the export demand for grain and meat is pretty certain to maintain their prices for the entire period of the war, and probably for several years afterward.

Consideration of all these factors in the dairy situation has moved a group of leaders in the industry to arrange for a National Dairy Producers' Conference. It will be held in Washington May 4th and 5th, for the particular purpose of considering the Lewis bill, already referred to.

The particular object of the forthcoming conference is to inquire whether the kind of regulation now provided does any good, and whether it does the most good possible. This conference is going to be dominated by men in sympathy with the dairy producers and not by gentlemen who talk about the tremendous importance of regulation, without knowing anything worth while about the business. They intend to find out just how much nonsense there is in the present regulations of milk production, to answer the alleged experts with expert knowledge from the other side.



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Ventures Which Have Returned a Profit of More Than Six Per Cent

Bees Netted \$192

By M. Cooper

I LIVED near two apiaries, each having 200 hives. I saw several swarms escape, so made up my mind to catch some and make some money. But first I must get some boxes and foundation. A friend of mine, about two miles away, had 30 hives a couple of years before, but they all died of foul brood, and he said he was disgusted and would never go into the bee business again.

I said to him: "Your hives are only rotting there, so you had better sell them to me cheap." So I offered him a heifer calf that I valued at \$15, and he accepted it. So I went over and got his bee outfit. I bought 20 pounds of wax at 50 cents a pound, fitted up 20 hives, and watched for swarms. The days were warm, and they swarmed readily, but with no one to catch them but me. In two weeks all my 20 hives were filled, and they got right down to work. My expenses so far were as follows:

Twenty pounds of foundation	\$10.00
One heifer calf I traded	15.00
One smoker	1.00
Brushes	1.00
Time spent in catching swarms	6.00
Total	\$33.00

The wild alfalfa came first, and I got one extracting. Then came the sage crop. It was the biggest in four years. I extracted four times, taking a day for each extracting.

I received an average of 110 pounds to the hive, which I sold to a wholesaler at seven cents a pound. The amount received for honey was \$182. My total expenses, including those listed, were \$50, leaving me a profit of \$132. Then a man came along and said: "I am going to move my bees down to the orange country. Will you sell me yours for \$3 a swarm?" I sold them to him, realizing \$60. I cleared \$192 for the season. That was the best investment I ever made.

Sunbonnet Business

By Grace Dietz

LET me tell you about our sunbonnet business which my sister and I started with a capital of 30 cents. With this 30 cents we purchased enough material to make five bonnets, which, selling at 20 cents each, gave us a gross return of \$1, making an increase of 70 cents.

This was about sixteen years ago, and I have made sunbonnets every year since. The season lasts about three months in the spring, with a two-weeks run in the fall, and we sell an average of 500 bonnets each year, sales being made to merchants in five different towns. These figures show about 300 per cent gross receipts.

Preacher Raised Hens

By Ernest MacEwen

THREE years ago I was pastor of a country church, and attached to the parsonage was a fine lot, so I invested in a small poultry house, three hens, and three settings of eggs. The whole, exclusive of my labor, did not cost me over \$15. With this small investment and by using spare time and working on system, I was able to secure a substantial return. All chickens and eggs sold and used, with the exception of five dozen eggs, were rated at the wholesale market quotations. During the first eighteen months I received:

Eggs to the amount of	\$37.46
Chickens disposed of	27.93
Increase of flock (70 fine pure-bred birds)	35.00
Total	\$100.39

EXPENDITURES	
Original investment	\$15.00
Feed and incidentals	50.00
Eggs used for hatching	5.00
Total	70.00

Balance on right side of ledger.. \$30.39

Rat-Sized Sow Pig

By Frank C. True

MY BEST investment is one that I made when a boy of about seventeen, and if I could make investments of the same paying quality to-day I would be a rich man.

With a hard-earned dollar I bought a sow pig about the size of a rat, and nursed it until it was big enough to put in a pen alone. In a short time it was large enough to sell, and with tears in

my eyes, but twelve dollars in my pocket, I watched the butcher take my pet away.

With this money I bought four more small pigs, and it was no time until I had \$50 in the bank and ten pigs in the pen.

The pigs grew rapidly. It didn't cost very much to feed them, and it gave me a lot of fun taking care of them and watching them grow. I used to spend a great deal of time around the pig pen. Knowing that I had the money realized from the pigs in the bank, and with the prospect of making more money, I was a happy boy. I might have made my fortune raising and fattening hogs or breeding pure-bred hogs if I had continued in the business. A sad fate befell me, however, when my family moved to the city, and my career as a stockman was suddenly at an end.

Bought Pea Thresher

By J. M. Cason

IN THE fall of 1913 I bought a gasoline engine, paying \$65 for it. I then proceeded to buy a pea-threshing machine and, mounting them on an ordinary two-horse wagon, set out to thresh peas for my neighbors.

Nearly everyone was surprised when I drove up to thresh their peas, for this was the first time that anyone ever threshed peas for the public. I threshed for the tenth bushel, and totaled 570 bushels in ten days. The operating expense was \$2.50 per day, besides my work. This gave me 57 bushels at \$2 per bushel, amounting to \$114. Deducting running expenses of \$25, left a balance of \$89 profit.

In the winter of the same year I sawed 50 cords of wood at 50 cents per cord, from which my clear profit was \$17.50. Thus I paid for my engine and threshing machine the first year, besides using the engine for sawing wood and other labor-saving jobs.

The second year, 1914, I again threshed for the public, threshing 1,100 bushels in fifteen days, giving me:

110 bu. @ \$1.50	\$165.00
Operating expense	37.50
Profit	\$127.50

Incubator Paid Well

By Mrs. M. E. Tuttle

MY SISTER-IN-LAW had a 400-egg incubator that she wanted to sell, as she was going to move to town. She said she would let me have it for \$10, and I could pay for it on the installment plan.

I bought it thinking I would go into the chicken business. The first spring I raised enough chickens to pay for the incubator, also selling \$15 worth of chickens.

The next spring I did even better. A few days before the incubator was to hatch I advertised in two papers, one in each town, as we live halfway between two towns, and as we had a telephone I got all the orders I could fill for baby chicks.

I made about \$30, besides raising 200 chickens for myself. I think this was a pretty good profit for a \$10 incubator, and am planning to do as well this year, as it is not hard work to take care of incubators.

Good Machinery Helped Us

By Henry Hatch

NINETEEN years ago we moved from Nebraska to Kansas, exchanging our Nebraska farm for a larger Kansas farm. It was necessary to assume a mortgage along with the increased acreage. From the day the mortgage was assumed the one great aim of all the family was to pay it.

Every cent we could rake and scrape went into "the mortgage fund," and in the farming of our 244 acres of eastern Kansas land we fell into the habit of making whatever machinery we happened to have do as long as it would hold together. With the habit formed we carried on the use of poor and out-of-date machinery quite beyond the time when we could afford to buy better, and lost many dollars each year by it. We used a worn-out corn planter three years longer than we should. Its old-fashioned dropping arrangement did not give an even distribution of the seed—perhaps one kernel in one hill and four in the next—and it lost us more every year we used it than the price of a new planter or two.

About this time wages began to advance, faster it seemed than the prices of farm products. We were farming with "small cut" machinery all around,

and old machinery at that. The extra help required to do our farming finally forced the fact upon us that the use of this small, worn-out machinery was a loss. Here in Kansas our fields are long and wide, so large machinery is the most practical. So as fast as we were able to replace an old machine with a new one, we bought invariably a larger size, something calculated to do more work in a given time without an increase in drivers.

We replaced the old, two-section harrow with one of three sections; bought a riding plow, a two-row cultivator, a hay loader that saved the help of two men in the rush of haying, a corn binder to replace the old and dangerous sled-type cutter, a manure spreader that cuts the work of manure hauling squarely in two, and does a better job of spreading besides.

All these things did not come at once, but it seemed that every new machine soon saved enough to buy the next new one on the list. Five years ago we bought an automobile. Autos owned by farmers were few and far between then, but we live far from town and knew we were spending more time than we should in making necessary trips to town. Folks thought, then, we were foolish to buy an auto, as they could not see what a farmer should want a car for. But after we used it a year or two hauling eggs, cream, and almost all kinds of farm produce to market in it, neighbors saw the auto could be used for business as well as for pleasure. Many who five years ago said that farmers with a desire to own autos were wrong in the "belfry" are now riding around in a car of their own, and are now free to confess that they couldn't get along without it.

We Buy and Sell

By W. H. Fleming

I AM a farmer engaged in producing a variety of farm products which must find a market in the city one mile away. From the markets of that same city all the necessities and luxuries of a comfortable living are obtained. This necessitates going to town several times a week. We very seldom go to town unless we have something to sell as well as something to buy.

This selling what you have in excess of your immediate needs, and buying what you want and do not have, constitutes a very important part of life, especially with a farmer.

We often combine pleasure with business. We get out the car, pack in the extra butter and eggs, or vegetables and fruit, or possibly a little of each, and call the goodwife and are off to town in a few minutes. The wife may make a call upon some city friend, the farm products are delivered, fresh and clean, the car is soon ready to call around for the wife. Then away to the stores for a little shopping, for there is always something needed from store, shop, or factory. With a car all this can be done quickly, easily, and with comfort.

There are no tired, dirty horses; there is no rough, cumbersome wagon, no valuable time wasted. Both business and pleasure go on smoothly, clean, and comfortable, and with dispatch.

The farmer likes it, the wife enjoys it, and the customer is satisfied. We know he is because he nearly always gives us a larger and better order for the next delivery.

This is the kind of work I introduce my car to each week, and the car seems to enjoy it as well as myself—at least it seems none the worse for the service, and I know I am not.

I see that the finish on the car is well protected. I use an automobile robe to protect the back of the front seat, and pieces of canvas to cover and wrap various articles carried in the car. In over 4,000 miles of service the car has not received a scratch due to such service.

This going-to-town service is usually given by horses, but the horse system is slow and disagreeable, and as antiquated as the stagecoach for carrying mail and passengers.

When I purchased my car I stated that I would never make a dray of it. I have adhered to this idea, and have never carried produce which could be carried better in a wagon. The wagon and horses are not discarded by any means, but are made to do the part which rightly belongs to them. No lumber, coal, grain, or potatoes in quantities are carried in the automobile.

The farmer must go to town for many small things, and these can be carried to and from the place of exchange—the home town—by auto with great expediency and satisfaction. The team is at home resting, and will be in far better spirits to do an afternoon's work, or a good day's work on the morrow.

IN OHIO every other farm has a manure spreader, one in three has a cream separator, and one in four a gasoline engine.

Good Health Talks

By DR. DAVID E. SPAHR

Motherhood

THE prime object and aim for establishing the marriage relation was for the propagation and replenishing of the earth's inhabitants. The command was, "Be ye fruitful and replenish the earth." But in this enlightened and intelligent age God's plans seem to have been perverted. How many take upon themselves the sacred relations with the real expectation of raising a reasonable number, or even any children at all? How many hope to escape the burden of children entirely? How many are ready to resort to almost any expedient to obviate the necessity of caring for them? Children are born to such people sometimes, it is true, but it is quite by accident, and entirely unintentional upon their part. And they are often greatly annoyed and exasperated at such a catastrophe. Such people often remark that they fully expect to have children after they have become settled in life, and have a home provided for them, and sufficient money on hand to support and educate them.

Parents that do not love children sufficiently to put up with a little inconvenience, or to discommode themselves quite a good deal, in fact, are not willing to sacrifice, if necessary, for the good of their children, are not worthy to be called by the sacred name of father or mother.

To bear children worthy of the name, we must give to them the best of our lives, the best there is in us, if we wish rich returns in love, honor, and respect.

On a northern-bound train, the other day, sat a fond mother and her six children—all girls. Their ages ranged from six months to ten years. The mother was neatly dressed and had a pleasant, happy, beautiful, although a slightly careworn face. The children were neatly and cleanly dressed, and had sweet, lovely faces. The mother told with pride that she had made all of their clothes and took all care of them and her home. People in the car coaxed the children to come and live with them and ride in their big automobiles, but no; they would not leave "Mama" and the mother looked lovingly over her little group, and said she had none to spare. A million dollars would not buy a single one, and she had no favorites. Such an ovation as she received! Many of the rich travelers on that train, with their elegant childless homes—barren fig trees, as it were—envied her, from the bottom of their hearts, the honor and love and respect that was accorded to her that day.

His Two Troubles

First, my hair has been falling out for five years, and my hair and my scalp are dry. Second, I have a good appetite and can eat anything, and it does not hurt me, but it seems to go right through me, before it has time to digest. I am twenty-five years old.
G. Z., Kansas.

FOR your falling hair try the old home remedy of sulphur one-half ounce, bay rum, three ounces, strong sage tea, enough to make a pint. Rub in thoroughly daily.

For your diarrhea take acid hydrochloric, dil., 1 dram; essence of pepsin, 2 ounces; tinc. quassia, 1 dram. Dose, one teaspoonful three times daily.

Hordeolum

For a year or two I have been troubled with dryness of eyelids while reading by lamplight. Have had what I supposed to be sties on my eyelids. They become inflamed and are very itchy and, when opened, pus and blood comes from them. What causes the dryness and are they sties?
J. B. S., Ohio.

YOUR physical condition is below par. You are also straining your eyes reading by lamplight. I would advise you to have your eyes examined and get suitable glasses. Yes, they are sties, or hordeolums. They should be treated antiseptically and opened with a clean, sharp knife.

Stomatitis Follicularis

What causes canker sores in the mouth, and how can they be cured?
R. R. E., Vermont.

THE mouth is the open doorway through which everything passes that goes to build up the system; consequently, it is a great source of infection—a fruitful field for the germination and multiplying of all kinds of germs. The mouth and teeth should be kept scrupulously clean. An antiseptic wash, a pale-rose colored solution of permanganate of potassium, is an efficacious mouth wash for your trouble. It is best applied by swabbing the mouth frequently with cotton pledgets moistened with the solution. Be careful with this, as it is slightly poisonous.

EW



Essentials

THE claims made for motor cars are varied and many.

You have been told of the speed of one engine; you have read reams of oratory on the great power of another engine; you have observed the stress laid on the virtues of multi-cylinder construction; elsewhere you have been confronted with a wide sweeping array of superlatives carefully substituted for concrete and pertinent facts.

To make a thoughtful and intelligent selection, it is necessary to sift the essentials from the non-essentials, because there are a lot of things said that are not important, even if true.

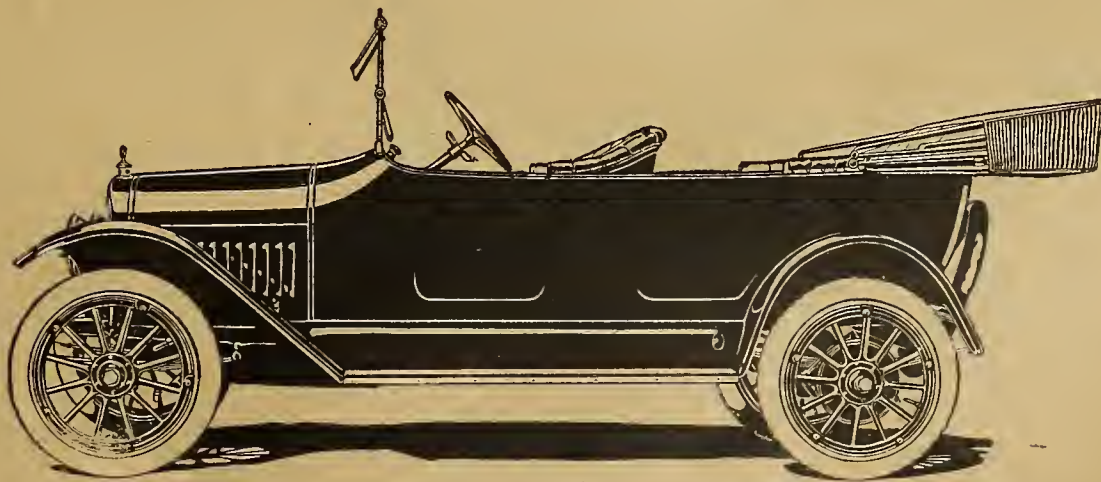
Deciding on a motor car for your particular needs is just the same as making any other kind of a decision. You must disregard the unimportant elements and weigh the remaining facts against your individual requirements.

If you are interested in a car that is inexpensive in first cost and after-cost, you will want to investigate the Maxwell. If you attach importance to sturdiness and reliability, you should know that the Maxwell is the World's Champion Endurance Car—it having traveled 22,000 miles last January without repairs, readjustments or without a single motor stop.

If you are concerned with gasoline and tire mileage, you will recall that on this 22,000-mile endurance run the Maxwell stock touring car averaged almost 22 miles to the gallon and over 9,000 miles per tire.

In the end you must be the judge, but just remember that there must be a definite reason for a production approaching 80,000 Maxwell cars this year, and for 40,000 having been sold last year in American farming districts alone.

Brief Specifications—Four cylinder motor; cone clutch running in oil; unit transmission (3 speeds) bolted to engine, ¾ floating rear axle; left-hand steering, center control; 56" tread, 103" wheelbase; 30 x 3 ½" tires; weight 1,960 pounds. **Equipment**—Electric head-lights (with dimmer) and tail-light; storage battery; electric horn; one-man mohair top with envelope and quick-adjustable storm curtains; clear vision, double-ventilating windshield; speedometer; spare tire carrier; demountable rims; pump, jack, wrenches and tools. **Service**—16 complete service stations, 54 district branches, over 2,500 dealers and agents—so arranged and organized that service can be secured anywhere within 12 hours. **Prices**—2-Passenger Roadster, \$635; 5-Passenger Touring Car, \$655. Three other body styles.



Maxwell

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Crops and Soils

Alfalfa on Raw Land

By Cairy Sunderland

WE LIVE in east central Indiana, where good land always brings a good price. After some years of hard work of about twelve to fifteen hours a day, I succeeded in paying for my first 40 acres, and feeling that I needed more land I began to look about for a small tract, as I could not afford a large one.

There were a lot of other folks in the same little boat—everybody to buy, nobody to sell. After quite a bit of looking around I bought as an investment a plot of eight acres of improved ground, about two miles from town and six miles from home, for \$1,400. I fenced it and laid some tile drains. But as it is appraised for \$100 per acre the question of making it pay six per cent interest and high taxes got me guessing.

I rented it for \$100 cash the first year, leaving the balance about equal, but I wanted a little profit. So I prepared about five acres for alfalfa, liming the ground, also inoculating and manuring it. Of course this all cost money, but it was net profits that I was after. I now cut three or four crops of alfalfa per year, and my ground is richer every year than it was the year before.

I take about 25 head of cattle with me when I go to harvest my crop, and let them pasture on the three acres of blue grass and clean up around the fences. There is a good spring of running water. I pitch my tent, and stay with the job until it is done, as there are no buildings. I cut \$300 worth of hay per year, and the pasture pays the expense of handling it. I was offered \$3,000 for this land, but as it was paying nearly 10 per cent net I declined the offer.

Two days later I found that someone had been there and dug a cave 5x7 feet on the river bank in a bed of fine gravel, and though it took two of us a whole day to fill it up with the same gravel, having to scaffold to do so, I discovered that it seemed certain the gravel on one acre was worth all I had been offered for the land. So I was not sorry I had declined the offer.

Ditch Dug with Dynamite

By Frank W. Orr

A WESTERN contractor dug 5.2 miles of ditch on a drainage tract by simply using dynamite. Six thousand pounds were used in 20-ponnd charges,



This ditch was blasted through thick underbrush filled with stumps, roots, and logs

placed in holes 18 inches apart and 18 inches deep. The ditch when blasted was four feet wide at the top and three and a half feet deep. A crew of four men blasted 1,800 feet of ditch in a day. This method is especially well adapted for constructing ditches through under-



This portion of the ditch is through a swamp. Four men blasted 600 feet in two hours

brush and among stumps and roots, where digging in the ordinary manner would be exceedingly laborious.

Cultivating Corn

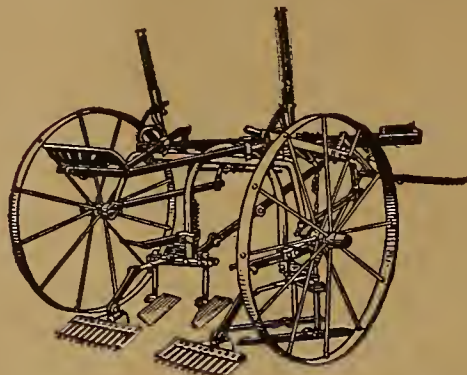
By John Coleman

THE Office of Farm Management of the U. S. Department of Agriculture at Washington, D. C., published a bulletin entitled "Farm Practice in the Cultivation of Corn" that contains a great many practical points. It recognizes that raising corn is a business proposition, and that the grower is more interested in making money than in raising large crops.

Among the facts which are now pretty well established are these:

When there are few weeds, cultivation becomes a matter of minor consideration. On good land plenty of cultivation pays better than on poor land. That is, when the land is capable of making high yields the expense of cultivating it is more than repaid. On poorer land you are repaid for your labor only up to a certain point, and too much work is a labor loss.

Four cultivations in alternate directions through check-rowed corn planted 3 1/2 feet apart gives an average of about 57 bushels per acre in Tipton County,



This type of cultivator is popular in Illinois. It's a good weed killer and leaves a light mulch

Indiana. Cultivation is for the most part done with a two-horse, six-shovel cultivator. In addition the cornfield is gone over with a spike-toothed harrow or a roller before and soon after the corn is up.

In Bates County, Missouri, the practice is quite general to harrow with a four-horse spike-tooth harrow about three weeks after planting. Some, however, harrow just as the corn comes up, and again a week later.

Where land is worth more than \$100 per acre, four and five cultivations are the customary practice, whereas three and four cultivations are largely given to land of less value.

The spike-tooth harrow is extensively used on all classes of soil.

The disk harrow is also widely used in preparing land, except where it is extremely rolling or stony. For such purposes the spring-tooth harrow is more popular.

Where the land is level, corn is usually check-rowed, as it can be more thoroughly and easily cultivated. The four principal kinds of planters used are the two-row two-horse check-row planter, the one-horse, one-row planter, combined lister and planter, and hand corn planters.

The acreage of corn raised and cost of labor determines the kind selected.

The most popular cultivator in Montgomery County, Ohio, is a two-horse, six- or eight-shovel cultivator of the riding type.

In Moultrie County, Illinois, corrugated rollers are used considerably in preparing the seed beds. Disk cultivators with three disks on a side are popular, as well as shovel cultivators. For the last cultivation the preference runs to surface cultivators which have four sharp horizontal knives that run about one inch deep. They are set at an angle, and slice off weeds more effectively than the common shovel cultivator. These knives can be had as attachments for either the disk or shovel type of cultivator.

Boosting Production

By F. G. Heaton

INSTEAD of cutting and burning weeds that may have grown up in neglected parts of the garden, plow them under while green; that is, unless the weeds are cut green and put into the compost heap. Many gardeners burn the weeds in the effort to destroy the seeds—a plan that is all right in theory, but which doesn't work out in practice, because the weed seeds, possessing amazing vitality, are not usually destroyed by the heat of the fire. Plowed under before the seeds mature, the same end is attained in a more effectual manner, while the green growth acts as green manure, and also puts humus into the soil—something of which no garden has an oversupply. Strawy manure, dead leaves, lawn clippings, and all similar material may be spread over the garden and plowed under with the weeds and grass, and the result in even as short a space of time as a

couple of years will be quite astonishing.

If a compost heap is maintained, all such material should go into the heap, where it will serve to make humus and at the same time take on added fertilizer value. Weed seeds in a compost heap will not germinate after several months of decay during the summer season.

Blasted 240 Stumps

By R. F. Vann

I HAVE been doing considerable clearing and ditching during the past year, and will relate my experience with dynamite, clearing a 15-acre field of stumps.

There were 240 stumps in the field—long-leaf pine, cut perhaps twenty years ago, the tops all rotted off. I bored holes with a sharp two-inch auger, starting the hole about a foot below the surface, going down in the taproot at an angle of about 45 degrees, far enough to make room for a stick of 40 per cent dynamite and leave room to tamp in six inches of stiff clay, and in the largest stump far enough to load four sticks and over.

In nearly every case the taproot broke off, the stump split and came out, and what was left of the taproot was driven deep in the ground.

I had a patch of six or seven stumps pretty close—two or three large ones in the cluster. I loaded all at one time in the usual way, except that in place of the fire fuse I used electric fuse and fired them all at one shot. They came out easily, bringing the large stump with all of the spreading roots. I hored these halfway through the thick part, put in a light charge, and split them up.

The soil in the field is a fine, soft loam underlaid with a stiff subsoil, which gave a good resistance to the dynamite.

The lot of 240 stumps taken out clean cost \$80 for labor and material, and gave five piles of rich light wood. Seventy dollars' worth was hauled to the city three miles away, and sold at \$3.50 per cord. As much was left for winter use.

The field was cleared of the blasted stumps by having a man go over to pick up and pile the fragments.

Then he went over again, piling the next largest pieces. The wagon followed, hauling to the lot. Finally a sled with eight-foot runners was tied to the rear end of the wagon, with the front end of the sled elevated to throw the weight on the wheels of the wagon. The stumps too heavy to lift were rolled over on the sled with ease, and the field was quickly cleared, two men and a team doing all the work in a couple of days—that is, the hauling.

Charges of dynamite set deep in the taproot will blast out the stump and make the surface so soft that the hole left will cave in almost full. The ground when plowed and harrowed smooth will show only a slight depression where the stump formerly stood; the water will run to the places and soak in, coming back to the surface by capillary attraction when dry weather comes on.

Potash Development

THE United States Geological Survey is now engaged in explorations of the panhandle of Texas for deposits of potash salts. The studies in this region made by Professor Udden of Texas seem to warrant the expenditure of public money in the search. There is some interesting development in the potash situation.

A commercial company is making a small amount daily from a mineral called alunite, in Utah. There is not enough alunite known to exist to furnish our supply, however. The great Searles Lake brine reservoir is in litigation between two companies one of which claims exclusive title to it; but Searles Lake, though larger, also falls short of a possible supply. Many chemists, some of them backed by capital, are working to get potash from the common stone known as feldspar, but the processes do not seem to work commercially. There is plenty of potash in the giant kelps of the Pacific Ocean—a huge seaweed—but its recovery presents at least two problems yet unsolved. One of these problems is the harvesting of the kelp, and the other is the drying of it. Imagine the problem of drying millions of tons of cabbage or rape to get something solid out of the plant and one has not yet quite imagined the kelp problem, for kelp is wetter than cabbage or rape. Add to the situation the fact that as soon as the war is over the Germans will be in the field with the Strassfurt salts, which they have probably never sold as cheaply as they could if they had to, and one realizes that a man will think twice before putting his money into any new process or plan of getting potash from American sources. But if in the panhandle or elsewhere concentrated deposits are found which resemble those of Germany the case will be different. The problem, in short, will be solved. Therefore, good luck to the explorers of the Geological Survey.



Automobiles

"Pinched"

By B. D. Stockwell

I VOWED that when I owned a car I'd never venture very far, But use it in the neighborhood As careful old folks always should. We got one, and it runs O. K. We simply pass what's in the way; Our fastest team is rather slow When we take it in our heads to go.

For twenty miles seems a joke, And thirty just a fearful poke; At forty I can get somewhere, At fifty I must use some care. I thought the marshal was my friend, But when I came around the bend He stopped me—well, I guess you know— 'Twas "Twenty-five and costs—go slow."

U. S. Autos Run Cheaply

THE Office of Public Roads, which is a part of the U. S. Department of Agriculture, has used three low-priced cars in supervising maintenance of the Washington-Atlanta Highway. These machines have furnished an excellent opportunity for securing accurate figures on the cost of operation. The cars were in use all of the year 1915.

The total mileage of the three machines was over 62,000 miles. Two of the cars ran over 22,000 miles, each, during the year, and the cost per mile in one case was 3.97 cents and in the other 4.07 cents. The other car ran 16,228 miles, and cost 4.75 cents per mile. Roughly speaking, the cost of running a light car may be said to be between four and five cents a mile. During the winter months the cost of running was some greater than during the summer.

These figures include the cost of overhauling all the cars, also storage charges, which aggregated \$170.

The greatest item in all cases was that of miscellaneous expense. After that came gasoline, which cost about a cent a mile and was about a quarter of the total cost. Tire casings, lubricating oil, and miscellaneous tire costs were next in importance. Grease was the most insignificant figure of all, costing but one thirtieth of a cent per mile. The automobiles were found to be considerably cheaper than livery service.

Lock the Car

MANY little things can be done to an automobile to prevent a thief from running away with it, yet owners take surprisingly few precautions to prevent theft or joy-riding.

Always disconnect the ignition system or lock the gear lever. It is a good plan never to leave the car in an alley or inconspicuous side street. A record should be made of the factory number, license number, and any little peculiarities of the car, as well as the style and make of the different tires. More cars are stolen at night in large crowds and while the owner is at the theater than at any other time.

Hauls Ice in Auto

By W. R. Schooler

I DO not think I have ever seen a greater incentive for good roads than the automobile is creating. Everyone seems to realize that it has become a part of us, and there is liberal contributing to the work that makes a better way of getting out.

With distance effectually overcome, a new life is opened up to the man in the rural districts. More social privileges can be enjoyed, and produce is bought and sold to better advantage.

For a number of years I was opposed to the automobile. I thought it was an expensive piece of machinery that the ordinary farmer could not afford to own, and was too uncertain a commodity for practical purposes. Then two years ago I was prevailed upon to buy a light motor car. It has proved a great source of pleasure as well as a good business investment.

We live 12 miles from the nearest town of any size, and are compelled to deliver most of our household necessities this distance ourselves. With a horse and buggy it was very difficult to do so. The whole day was required to drive to town

to do our trading, and back again; besides, there was never enough room for all the bundles. Now the same trip can be made in one third of that time, and the car is big enough to hold everything.

During the summer months we cool our milk and butter with ice. The inconvenience of hauling it long distances in a buggy, and the high prices charged us by a groceryman passing our home on his way to and from town, was one of my main reasons for purchasing a car. When out on a pleasure ride in the afternoon or evening we can get ice directly from the plant, and as it costs us from 50 to 75 cents less a hundred than it did before, enough is saved to pay for the gasoline.

Last summer there was a scarcity of apples in this part of the country. From 12 or 15 trees we marketed with the automobile more than \$100 worth. The retail dealer who purchased them would telephone out whenever he wanted a fresh supply and his order was filled immediately. This was the first time any fruit had ever been sold off the farm.

Poor Care Causes Delays

But the automobile has been profitable to me aside from being a market car. One morning shortly after purchasing it I had to make a business trip to town. As I was getting ready to start, I received a telephone message that one of the insurance companies was going to sell some wheat on a neighboring farm that was slightly burned. They wanted me to come to look at it. I did not have to consider distance, so I went. I bought the wheat to feed to my hogs at a figure that I consider made me \$200, and still had plenty of time to keep my other business engagement.

Of course there is an outgo as well as an income attached to a motor car. I have never kept a strict account of how much it costs to run mine, but we have gone as often as we liked and as far, and I think something like \$20 a month would cover all expenses for gasoline and repairs.

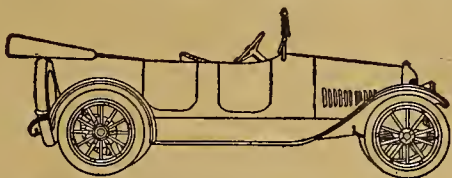
If an automobile is well taken care of, it will not give much trouble. It is usually because of bad tires and general carelessness that people are delayed.

New Car Best "Buy"

A WISCONSIN reader is undecided about the selection of a car. He is considering a new car in the \$700 class, also a seven-passenger used car of 1912 model, which he can buy for about half that price. "Which is the best investment?" is the question he asks.

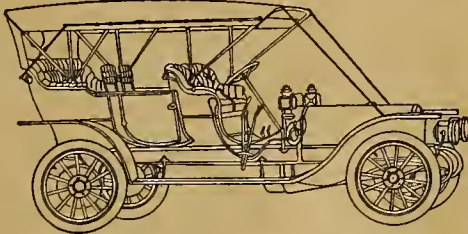
The answer depends on the condition of the used car. If the cylinders are worn very much he will lose a good deal of power, and the chances are that it would cost close to a hundred dollars to give the old car a thorough overhauling. Even then the body would stamp it as an old-timer.

Besides, as the sketches show, the new car will offer less wind resistance, is lighter and, other things being equal,



A stream-line body offers less wind resistance

will go farther and faster on a gallon of "gas." For thorough satisfaction a new car is the best "buy," but if one wants to have a machine that will take him



Old-timers require more "gas"

around, and if he is not particular about the looks, a used car will generally give service for a few years and will give lots of valuable experience.

Size of Garage

A SUBSCRIBER who intends to purchase a medium five-passenger touring car asks how large a garage he ought to have.

For such a car a garage 12x15 feet, and 9 feet at the eaves, is large enough, but one 12x18 would be better if he expects to do his own repair work. Accessories, tools, and supplies require a considerable amount of storage space. On the other hand, too large a garage is difficult to heat in winter. Either 12x15 or 12x18 feet are safe sizes, and the entrance opening should be 8x8 feet.

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Our 66th Year Double the Capacity with Less Power and considerably Less Speed. We make Silo Fillers of extra large capacity to meet the special requirements of all silo users. These machines are specially designed to be operated by popular size Gasoline Engines—6-8-10-12 and 14 H. P. Tell us what your power is and we will advise you what size Ross Silo Filler you require. Write for Our Special Proposition Today and state if you intend to buy this year. Early orders will save you money. The E. W. Ross Co., Box 119, Springfield, Ohio

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Write us at once if you wish to secure one of the new Double Leverage Model Kirstin One-Man Stump Pullers at 20 per cent off. We have a certain number of our latest improved models to sell for advertising purposes. To the first buyer in each township we will make a special reduction of 20 per cent from our low net prices. The Kirstin is the most practical land clearer ever designed. Lowest first cost—lowest cost of operation. It saves you money all around. Don't lose time. Write at once. Find out all about the improved Double Leverage Model Kirstin. Let us show you why and how the Kirstin clears land faster, cheaper, better than any other way. If you want to make the big saving of 20 per cent—write at once. Remember this proposition is open to first buyers.

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"To rid hogs of disease germs—to overcome cholera and to keep in good condition use "Sloan's." When pigs begin to cough, use "Sloan's."

Dollar Size
six times
the 25c.



Live Stock

Homeward by Live Stock

By L. E. Armour

WE PURSUED the one-crop system of farming, coupled with the worry and attending debts of unreliable laborers, until we were almost reduced to poverty. Disheartened, and with greatly weakened courage, we came to this State five years ago. After paying our railroad fare and freight we had just enough money left to buy what we actually had to have in the house, pay one half on a pair of plug mules, to buy one young grade cow which cost us \$20, and to buy three hogs at a very low price.

Our greatest capital was energy. We had good credit and were compelled to buy our supplies in the beginning on time, but past experience had taught us to dread pay day under the credit system, and we set our wits to work to devise some way of reducing the cost of living. We had brought a few pure-bred geese, turkeys, and chickens with us, and a little advertising brought orders for eggs in the spring that helped us a great deal, and helped us to decide that live stock was one essential toward living at home. We rented 40 acres of land, planted cotton, corn, sorghum, peas, potatoes, peanuts, and one-half acre to melons. We raised plenty of vegetables for home use, made a good yield on all crops, the most peas and the finest melons I ever saw, and while ours is a dull market we sold melons to the amount of \$35, gave many to the neighbors, and fed more to the hogs. Excepting \$13, the melon proceeds were spent for supplies, the \$13 was invested in pigs, buying 16 of the sorriest-looking specimens, I ever saw, and which had been but a nuisance to their owner.

We bought them in August and turned them directly into the field of peas and peanuts. I never saw pigs grow so fast. We began butchering them in October. The first one brought \$6.50, and the last one nearly \$9. From the three hogs bought in the spring we made our meat and lard. The pigs just about paid our store account, making it the easiest debt to pay that we had ever had. They were our greatest help toward making a payment on a home that fall. Since then we have made live stock one of our main lines. We have bought in all, since then, three cows, the highest priced one being \$35. We lost our best one, sold all the cull calves, one nice male, and only one cow; yet the proceeds have been \$197, and we have now three cows, one male and three choice heifers. One of the cows is well worth \$75. We have used pure-bred males with our grade cows, which is a slow way to reach perfection, yet the best a poor man can do. We cannot always find pigs as cheap

as those first ones we bought, so have fenced a hog pasture preparatory to raising our own pigs, which we expect to have pure-bred. We have free range here, but consider it a curse to hog raisers. We really think it is the principal cause of the great ravages of cholera. The only start of pure-bred hogs we have been able to procure died of cholera contracted from range hogs on the other side of the fence.

Besides hogs and cattle, we have found a much neglected branch of live stock—goats—very profitable. They require but little feed during winter, and grow fat in spring and summer on bushes and briars, saving the farmer much expense in clearing land of thickets, and besides make the best of meat when butchered properly. A goat can be raised to a size that will bring \$2 on the market at less trouble and expense than a chicken.

Being limited as to means, we kept buying scrub horses and mules when one died, which has happened every year until last year. We learned that it was better to buy good stock at higher prices, and the last purchase was a good mare. A good colt can be raised as easily as a calf, and will bring more than several calves. Live stock has led us "homeward," and we expect to use more and better stock as our anchor to hold us safely near the shore.

The Sow and Her Pigs

By Millard Sanders

LUKEWARM water is the diet I give my sows the first twenty-four hours after they have farrowed. Then I begin to feed them a ration of corn, oats, and a slop made from shorts. To keep the pigs from scouring I watch the milk flow of the sows very carefully.

I mix the slop as it is needed every feed, instead of using a barrel, as many persons do. This way the slop is fresh. If left in a barrel only a short time it sours more or less, depending on the temperature. The size of the litters determines the amount and kind of feed I give the sows.

When the pigs are a few days old I give them plenty of exercise. Losing pigs with thumps for one spring taught me that it is safer to err on the side of exposure and overexercise than not enough exercise. Especially watch the pigs of the small litters.

As soon as the weather is warm the sows and the pigs are turned out in a large dry lot for exercise. A pen in which the pigs can get in but the sows can't serves as a feeding place for them. It doesn't take the pigs very long to learn to eat shelled corn, oats, and a shorts slop.

When it is warm enough to stay out overnight, and the clover and alfalfa pastures are green, I turn the sows and pigs on pasture. The ration is kept large enough to keep up the milk flow, and the feeding of the pigs is increased, although they eat a lot of alfalfa and clover.

Preventing Influenza

INFLUENZA, or distemper, among horses can be prevented very largely if the animals are vaccinated with influenza antitoxin as soon as the first case appears. Two doses are given about six days apart.

What's She Telling Teacher?

\$15 in Prizes for the Best Answers



EVER since we got our first look at the picture that appears on the front cover of this issue of Farm and Fireside, it has piqued our curiosity—What's she telling teacher? That is the question to which we would like an answer. It's evidently something interesting, judging from the expression on the teacher's face. And equally evident that the pointer is indicating something on the map. But what is it? And what is the little lady saying? We give it up, and are going to give our readers a chance to express themselves on the subject. To make it interesting, we shall pay: \$5 for the best answer; \$3 for the next best; \$2 for the third best; and \$1 each for the next five best answers—the Farm and Fire-

side Editors to be the judges. We are not going to consider fancy writing or anything like that—it's the idea that counts. Take another look at the picture on the cover—better take two looks, and then tell us what she's telling teacher.

Address answers to

Contest Editor FARM AND FIRESIDE Springfield, Ohio

To Save the Foals

INFECTION of the navel by filth at birth and the stoppage and inflammation of the bowels cause the death of many newborn foals. Some horsemen believe that 25 per cent of the foals die from these troubles.

Even though fewer losses occur if a mare foals on grass, still the navel and bowels of the foal should have care and attention. If a mare foals before she is turned on the pasture, she should be placed in a light, well-ventilated stall. The walls and ceiling should be white-washed, and the floor flooded with white-wash. The whitewash can be made in the proportion of three gallons of water to a pound of chloride of lime.

As an extra precaution the floor and bedding should be disinfected with a 1-to-50 solution coal-tar disinfectant. The bedding should be clean, dry, and free from chaff or dust when it is used. If a box stall is available for the mare to foal in, all the better.

If the navel cord doesn't bleed very badly, many horsemen prefer not to tie it. They let it break off, or they scrape through it with a sterilized knife. The stump of the cord is then placed in a wide-necked bottle which contains a 1-to-500 solution of corrosive sublimate. The solution can be made from tablets. They can be bought at any drug store. The application is repeated two times a day until the cord has dried up and dropped off.

Other horsemen squeeze the navel dry, saturate the stump with a full-strength tincture of iodine, and dust the stump with a mixture of equal parts of starch powder, boric acid, and powdered alum until it is coated thickly.

If it has been necessary to tie the navel, the ligature is taken off as soon as the danger of bleeding is passed. The clotted blood and serum is then squeezed out, and the stump is given the iodine and starch powder treatment. The soiled bedding and the afterbirth of the mare are burned.

Rectal injections of warm sweet oil, flaxseed tea, slippery-elm bark tea, or warm water and a little glycerin will cause the bowels of the foal to move quickly and rid itself of meconium, which is the first sticky fecal matter passed by the foal.

If the foal's bowels don't move promptly after that, two or three tablespoonfuls of a mixture of two parts of castor oil and one part sweet oil, shaken up in milk, or raw linseed oil will cause them to move.

Orphan Lambs

By Mrs. T. D. Smith

IT FALLS to my lot as a farmer's wife to have a few orphan lambs to raise every year. We find it pays us better to keep the old ewes and let them die on the farm.

When we sell them we get very little for them, but by keeping them, they will give from one to two nice lambs, besides the wool, every year for three to five years after they are classed as "shells." When the ewe dies we raise the lamb on the bottle, bury the ewe in the grape arbor or orchard for fertilizer, and feel we were well paid for keeping the ewe.

I lost a number of lambs before I learned to raise them on the bottle, but soon learned that their lives depended on the first few days, and that they had to be treated very much like infants. I give them just a spoonful or two at first, and gradually increase the milk, which must be fresh, as they can take it. After that they are very little trouble. I lost two from leaving a door open and letting them get to a fire. They will always get to a fire if they can, and it will invariably kill them. They will just sleep themselves away.

My husband gives me all I make from pet lambs, and this increases my savings-bank account from \$6 to \$15 a year.

I think the farmers' wives and daughters will agree with me that if the income of the orphan lambs and runt pigs be given them there will be more money made from them, and as a rule it will be invested to greater advantage for the welfare of the family than if they had been left to the men.

To Heal Wire Cuts

DR. A. S. ALEXANDER, FARM AND FIRESIDE's veterinary adviser, gives the following directions for treating a barbed-wire cut: Wash the cut thoroughly with warm water, clip the hair as close as possible around it, and wash out again. If dirt or hair has lodged in a deep cut, use a piece of absorbent cotton to remove it, but never use an old sponge because of the danger of infection. Nor is it safe to apply axle grease or old ointment to the wound. Dry dusting powder has a healing effect on wire cuts. Make this powder by mixing together equal parts of slaked lime, powdered sulphur and charcoal.

EXPERIMENTS

Teach Things of Value.

Where one has never made the experiment of leaving off coffee and drinking Postum, it is still easy to learn something about it by reading the experiences of others.

Drinking Postum is a pleasant way out of coffee troubles. A Penn. man says:

"My wife was a victim of nervousness, weak stomach and loss of appetite for years; and although we resorted to numerous methods for relief, one of which was a change from coffee to tea, it was all to no purpose.

"We knew coffee was causing the trouble but could not find anything to take its place until we tried Postum. Within two weeks after she quit coffee and began using Postum almost all of her troubles had disappeared as if by magic. It was truly wonderful. Her nervousness was gone, stomach trouble relieved, appetite improved and, above all, a night's rest was complete and refreshing.

"This sounds like an exaggeration, as it all happened so quickly. Each day there was improvement, for the Postum was undoubtedly strengthening her. Every particle of this good work is due to drinking Postum in place of coffee." Name given by Postum Co., Battle Creek, Mich.

Postum comes in two forms:

Postum Cereal—the original form—must be well boiled. 15c and 25c pkgs.

Instant Postum—a soluble powder—dissolves quickly in a cup of hot water, and, with cream and sugar, makes a delicious beverage instantly. 30c and 50c tins.

Both forms are equally delicious and cost about the same per cup.

"There's a Reason" for Postum.

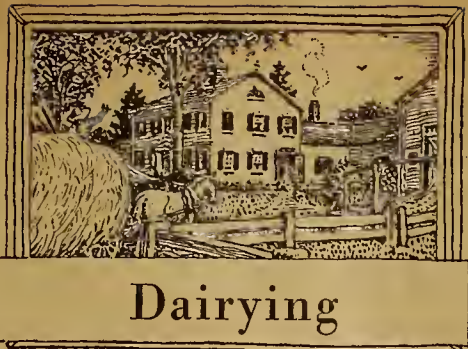
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A SOLID PROPOSITION to send new, well made, easy running, perfect skimming separator for \$15.95. Skims warm or cold milk, making heavy or light cream. Bowl is a sanitary marvel, easily cleaned.
ABSOLUTELY ON APPROVAL
Gears thoroughly protected. Different from this picture, which illustrates our large capacity machines. Western orders filled from western points. Whether dairy is large or small write for handsome free catalog. Address:
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COMPETITORS \$29.80
208 of THEM BEAT
"In competition with 208 separators in our district, our New Golden Harvest out-skimmed all others and left least amount of cream in skimmed milk."
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Gets All the Cream All the Time
Makes dairymen more profitable. Skims 350 pounds per hour. Many great improvements not found in other separators. Sanitary Bowl. Cleaned in 3 minutes.
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Fewer working parts. Extremely simple construction. No complicated parts to cause costly repairs. Ball bearing. Long wearing. So light running that child can operate it. Self-oiling—no mussy oil cups to fuss with. An improved separator at an immense saving. 60 Days' Free Trial. 20 Year Guarantee. Get all the facts about this better separator. Learn how it is making and saving money for other farmers. All told in illustrated Dairy Catalog No. M39. Send for your copy today.
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Write House Most Convenient



Dairying

Breeding—That's All

By B. D. Stockwell

THE Red Poll cow shown in the picture is owned by a Minnesota breeder and produced 603.6 pounds of butterfat in a year, four times as much as the average cow kept for milk. Red Polls



Though not of a dairy breed, this cow yielded 603.6 pounds of butterfat in one year

as a breed are not considered dairy cows, but this cow comes from a milking strain, and is the result of breeding with milk production in view.

Beats Own Record

By Clement C. Lawless

IN ONE month last winter, by judicious feeding, C. M. Meader, a New Hampshire dairyman, reduced his cost of producing butterfat a cent a pound. He is a member of a cow-testing association and one of the directors of the creamery of which I am the buttermaker. Skim milk in this locality is fed mostly to calves.

The profit in Mr. Meader's herd, as figured below, is therefore simply on the basis of butterfat sold to the creamery. Here are the figures:

	December 1915	January 1916
Number of cows.....	26	29
Pounds of milk.....	16,440	17,370
Price of fat.....	\$0.385	\$0.375
Value of fat.....	\$305.43	\$318.77
Cost of roughage.....	119.80	114.10
Cost of grain.....	66.70	73.60
Total cost of feed.....	186.50	187.70
Profit.....	119.93	131.07
Food cost per pound fat	.23	.22

A record of this kind does not give all the details of feeding, but it sets a standard that is useful in the corresponding month of the year to follow. The chief value of a cow-testing association is to establish a definite idea of what it actually costs to run a dairy of certain size as compared with what it can be made to cost.

Milk Fever in Brief

MILK FEVER is a disease limited to dairy cows.

Heavy milkers that are five to eight years old are most susceptible; heifers with first calf never have it.

The disease usually appears about two days after calving; in rare cases it occurs before calving.

The first symptom is great uneasiness and failure to eat or drink.

Abdominal pain and a staggering gait then follow.

The cow gradually becomes weak and lies down.

Usually the head is turned to the left side and held there—an almost certain indication of milk fever.

At first the cow has a fever, which disappears as the disease progresses.

The bowels and bladder become paralyzed and the digestive system is subject to disorder.

Bloating and the belching of gas may cause the lungs and throat to be inflamed.

Unless skilled aid is given before this stage, the cow is likely to die.

A restricted diet a week or two before calving and four days afterwards is one of the best means of prevention.

Plenty of salt and fresh warm water are also important. Salt encourages the cow to drink.

A cow that is thought likely to have milk fever, or has had it before, should be given a purgative (one pound Epsom salts) twenty-four hours before calving is due.

Give plenty of exercise, but do not let her run on rich clover pasture.

Do not draw any milk from the bag for twelve to twenty-four hours after the cow has calved.

By far the best means of treatment is a milk-fever outfit for pumping air into the udder.

Nineteen cows out of twenty given that treatment recover.

As a makeshift a bicycle pump may be used. The intake opening is filled with sterilized cotton and a sterilized tube is attached to the delivering tube.

The entire outfit must be sterilized by boiling twenty minutes.

Wash each teat carefully and pump air into each quarter of the udder, sterilizing milk tube each time with carbolic acid.

Tie the free ends of the teats with tape to prevent escape of the air.

Repeat in two hours if improvement is slow.

The application of hot water to the back and loins helps to remove blood pressure from the vital organs.

Likes Milking Machines

By E. A. Wellner

I STUDIED the principal makes of milking machines before I got the one I now have, and while they all have good points I am very well satisfied with mine. Its construction is simple—no complicated mechanism to get out of order. It is easy to keep clean and sweet, and the milk is free from dirt, for it is not exposed to the air from the teat cup to the pail.

The cover of the milk receptacle fits tight so no dirt can get in. It is the cleanest way to milk, and anyone can quickly learn to run the machine. A child could run it if he were strong enough to carry the pails of milk. I often have had a boy eleven years old watch the different units while I would be doing other chores, and he could attend to everything except emptying the pails full of milk.

My wife has started the engine, attached the machine, and completed the milking of eighteen cows in one hour. She could not have milked that number in less than two hours, and her hands would have been tired at the end of that time. The machines milk the cows as well, if not better, than they could have been milked by hand. The cows stand more quietly when milked by machine. The suction is somewhat like a calf sucking. The most nervous cows stand nicely for the machine to milk them, and most of the cows allow the teat cups to be attached from either side.

I can milk two cows at a time with my machine. The more units you have the more cows you can milk at a time. My machine cost \$150, with not a cent for upkeep or worn-out parts. If a man takes proper care of his machine and all its parts, the cost of upkeep will be little or nothing.

Any dairy farmer having 25 or 30 cows can well afford to use a milking machine, but I would not advise it for less than 20 cows. With a herd of good cows, a milker, engine, and cream separator, any farmer cannot fail to make a good profit on the money invested if he has any market for his produce and good roads to carry his produce to market.

ONE user of a milking machine says that one of the best things about it is that it does not swear at the cows.

A MILKING-MACHINE user says that some failures with the machines are due to leaving the strippings in the udder. He believes in saving the last milk, which is the richest, and hand stripping enables him to know the exact condition of the cow's udder every day.

A New Dairy Hybrid

A CUBAN subscriber of FARM AND FIRESIDE, E. H. Bogart, has a hybrid milch animal—a goat-deer cross—which is being used as a source of household milk supply. The mother of this hybrid is a pure white goat. The father is a wild deer that frequented the fields near the



This curious deer-goat hybrid gives two quarts of milk daily

dwelling where the mother of the hybrid was kept. The deer and goat were seen to mate.

The offspring of the deer and goat is colored almost identically like her father, but in horns and conformation she closely resembles her mother. This hybrid has produced about two quarts of milk daily for nearly a year, feeding mostly on native weeds and vines.



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Supreme in Skimming Efficiency

Over 35 years of experience and thousands of tests and contests the world over have demonstrated the De Laval to be the only thoroughly clean skimming cream separator, under all the varying actual use conditions favorable or unfavorable.

Supreme in Construction

This applies to every part of the machine—to the bowl, the driving mechanism, the frame and the tinware. The De Laval Patent Protected Split-Wing Tubular Shaft Feeding Device makes possible greater capacity, cleaner skimming and a heavier cream than can be secured with any other machine.

Supreme in Durability

The De Laval is substantially built. The driving mechanism is perfectly oiled and the bowl runs at slow speed, all of which are conducive to durability and the long life of the machine. While the life of other cream separators averages from three to five years, a De Laval will last from fifteen to twenty years.

Supreme in Improvements

This has been the greatest factor in De Laval success. Not a year goes by but what some improvement is made in De Laval machines. Some of the best engineers in America and Europe are constantly experimenting and testing new devices and methods, and those which stand the test are adopted.

Supreme in Service

With its worldwide organization and with agents and representatives in almost every locality where cows are milked, no stone is left unturned by the De Laval Company to insure that every De Laval user shall get the very best and the greatest possible service from his machine.

Supreme in Satisfaction

De Laval users are satisfied users, not only when the machine is new, but during the many years of its use.

Supreme in Sales

Because they are supreme in efficiency, construction, durability, improvements, service and satisfaction, more De Laval Cream Separators are sold every year than all other makes combined.

Get your De Laval now and let it begin saving cream for you right away. Remember that a De Laval may be bought for cash or on such liberal terms as to save its own cost. See the local De Laval agent, or if you don't know him, write to the nearest De Laval office as below.

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Poultry-Raising

Runners on the Map

By C. S. Valentine

THE champions of Indian Runner ducks in New York State are making a systematic attempt to overcome the prejudice that now exists in the minds of egg buyers and consumers against ducks' eggs for table use. The value of Runner ducks as economic egg producers has been proved beyond dispute. There only remains the task of popularizing the eggs and meat of Runners as a desirable food product, then the future of these ducks will be assured and Runner poultry plants will multiply rapidly.

The Cumberland Runner Club of New York is arranging to open receiving and sales stations in some of the larger cities of the State. Later the intention is to establish such stations in different parts of the country. These receiving and selling stations will court publicity by means of placards and circulars giving information about the productiveness of Runners and the proven good quality of the eggs and flesh. Also, orders will be taken at these stations for sample shipments of Runner eggs by parcel post.

This runner club has had analyses made of Runners' flesh and eggs by four state universities, and also comparative cooking tests, made by experts in the home economics departments, to determine the palatability of the meat of Runners. The tests have shown there is no difference in the flavor of Runners' eggs and hens' eggs when each are kept under conditions favorable for profitable commercial egg production. It was shown by analysis that Runners' eggs are considerably richer in fat than hens' eggs.

The plan of supplying money to make this campaign for getting the facts about Runners before the public is to ask breeders of Runner ducks to pay one dollar each to help establish the centers for the advertising and sale of Runner eggs.

Chicks Ask for Grit

By Zina Summers

MY EXPERIENCE convinces me that the 350 chicks killed by eating sand described by Philip M. Marsh would not have overateu if they had not been deprived of grit for several days after being old enough to feed.

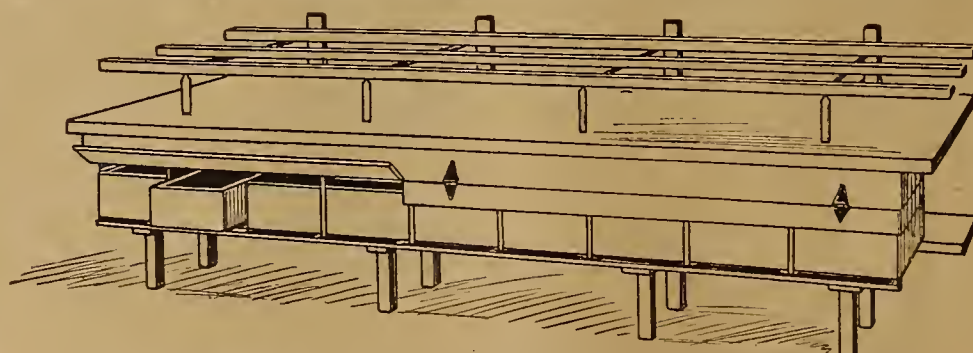
When chicks are taken from the nest or incubator, I always provide sand or grit as soon as they are old enough to feed. I have raised thousands of chickens, and have never lost one by their overeating grit.

Last year, from one hatch of 108 chicks I still had 105 living when they were three months old.

Roosts, and Nests Too

THIS portable roosting and nesting outfit can be made in any convenient length for handling. Picture shows a nine-foot size, entire length being ten feet. The dropping board should be four feet wide to accommodate three perches. The length of the legs should be sufficient for the hens to work under comfortably. This will bring the dropping board about three and one-half feet from the floor.

The run board at the rear enables the hen to enter the nest at the back, and keeps the nests dark, thus discouraging egg-eating. The gathering of the eggs



This roosting-nesting outfit is easy to keep clean, and can be carried outdoors for treating with lice exterminators. Hens enter nests the back way

in front, by lifting a hinged board, is convenient; also the removing of the drawer form of nest boxes, which favors easy cleaning.

An outfit similar to this, accommodating about 60 adult fowls, is sold by poultry supply houses for about \$10.

A Breakfast-Egg Flock

By E. F. Weber

NEW-LAID eggs for breakfast, from one's own little flock, are almost a necessity after once being enjoyed.

My flock of eight Wyandotte pullets furnished an average of four eggs a day for ten months in 1915. Their yards were exactly 10x25 feet.

Here is their account from January 1, 1915, to January 1, 1916.

INCOME	
Eggs sold and eaten	\$31.59
Sold five cockerels	7.00
Chickens for table	2.65
On hand Dec. 31, 1915:	
10 pullets, 4 hens	14.00
One rooster	3.00
	\$58.24

EXPENSE	
To eight pullets	\$8.00
One rooster	3.00
Feed for the year	19.00
	30.00
Profit	\$28.24

By mouth, the egg production of the eight pullets was as follows:

January	126
February	138
March	150
April	152
May	155
June	119
July	112
August	95
September	86
October	55
November	41

Total 1,229
An average of 153 eggs for each pullet.

Runners Pass Chickens

By A. L. Roat

THE first year that I kept Runner ducks with a view to testing their egg-producing qualities I was surprised and delighted with the result. The ducks came on the farm in the very early spring and began to lay after a week, and continued till late summer. Twenty-five ducks averaged 20 eggs a day for almost seven months. I was satisfied that Runners were more profitable than a flock of farm chickens for eggs, and I have continued to keep them since the first experiment. I endeavor to increase efficiency by mating old ducks to drakes of a heavier laying strain.

My ducks are housed in a clean, dry pen. The floor is littered with chaff and cut straw, or any kind of short roughage. An outside yard affords them a place for exercise and recreation. The drinking vessel is kept in the yard, except in very cold weather. This method helps to keep the inside pen from getting sloppy and wet. During the late summer they are put on range in a woodland pasture.

In cold weather, I feed a hot mash and boiled potatoes mixed together at noon. Coarse-ground grain is fed night and morning. Grit, oyster shell, and charcoal are kept before them always. Some extra beef scrap is added to the regulation mash during the cold months. It keeps the egg production more uniform.

Ducks usually drop their eggs anywhere. But I built nest boxes just off the floor of the inside pen, and soon the ducks learned to lay their eggs in the boxes. The result is clean eggs. The duck eggs find a ready sale. Most of them are sold with the chicken eggs. Being of a light color and about the size of a hen egg, no discrimination is made. In the laying season, which is about ten months, the eggs are flavored practically the same as hens' eggs, because they are fed the same food and do not get out on range to eat grass, weeds, or garlic.

Ducks demand dry quarters. They cannot thrive in a damp place without contracting diseases. I never permit the ducks to be annoyed. They are nervous birds and will stampede at the least provocation, especially during the night. Dogs are their enemy more than cats.



Garden—Orchard

Has Faith in Flowers

By O. R. Geyer

WHEN he isn't inspecting apiaries in his war on bee diseases, Frank C. Pellett, Iowa State bee inspector, is rescuing wild flowers from the destructive hands of his fellow Iowans. A half-acre plot on his little farm is used exclusively as a wild-flower preserve, and there are more varieties of wild flowers and plants growing in this small field than can be found in almost any garden in the country. Some of these flowers have become extremely valuable because of the fact that they have practically disappeared from the fields and timberlands of the State. The State has suffered an immense loss because of this ruthless destruction of its native flowers. Mr. Pellett believes, and he is preserving all of the species until such time as the farmers begin to realize their mistake and are



Says flowers are friends

anxious to make amends by repopulating the roadsides with honey-producing plants.

Inspector Pellett gave up a growing law practice to live "close to nature." He spent the greater part of one summer raising by hand a family of young paper-making wasps who lost their mother in a storm, and succeeded so well that the baby wasps probably never realized their loss.

Incidentally there are more birds' nests on the Pellett farm than can be found in any one spot in the Middle West.

Three Strings to Bean Row

By Samuel H. Garekol

BUSH BEANS give the grower several chances to make good on his crop. He is able to sell them as snaps, shell beans and, when dried, for baking or for seed purposes. When the market gluts, this means a big thing where large areas of beans are grown.

I don't believe there is another vegetable that will respond more generously or more quickly to good care than this old-fashioned crop. For best results, a well-manured, fall-plowed warm sandy loam is required. The ground must be worked as deep as the tillage tools will allow, and should be leveled and worked down in a fine condition with a heavy plank drag.

A fertilizer carrying a large percentage of phosphorus has always done best with me. As soon as danger of frost is over I sow good seed in drills about 30 inches apart, to allow of easy cultivation, and always avoid using the same field twice in succession. Frequent but shallow cultivation is needed, and I aim to start the cultivator after every rain just as soon as the ground is fit to work. At the second hoeing I draw a little earth about the plants to support them.

I think that nearly two thirds of the rust and blight that give trouble with beans is due to cultivation, hoeing, or picking when the foliage is wet.

A good picker should pick about eight bushels of snap or shell beans a day. Instead of pulling ripe beans, the operation has been much facilitated by the special harvester generally employed where many beans are grown. The harvester throws two or three rows of beans together in small piles for curing. If the weather is wet the piles must be

turned frequently to prevent damage to the beans. After the beans are thoroughly cured they can be stored in the barn in loft or mow, and threshed by running them through pea or bean thresher whenever it is convenient. But the threshing should not be done until the weather is cool. When the quality is good, no crop of late years sells to better advantage than dry beans, since there is always a strong demand for this crop.

Much depends on keeping string beans and shelled beans from heating in regard to the profit derived from them. Dryness and coolness are essentials in preventing the beans from deteriorating before they reach the consumer. In place of the three-peck and bushel boxes or baskets, often used, the use of one-third or one-half bushel boxes or containers will prevent many losses during shipment.

For the local market the green shell beans are usually wanted shelled ready for cooking. The neatest way I have found to shell them is to run them through a clothes wringer. You will need to wear a face mask or goggles while feeding them in, but they will surely "shell out" all right. To the local trade I sell shell beans in pint and quart berry baskets, but can often get considerably better returns by shipping my earliest beans to distant markets to be sold on commission.

What Raspberries to Plant

By M. G. Kains

LAST season's experience showed that Luthbert is still the best-handling red raspberry of the general list, but it is a little shy on yield. Columbian (a purple) is a heavier bearer, but is less firm and drops badly from the bushes when a trifle overripe. A fair average yield of red varieties should be 70 bushes to the acre.

Early Miller is a poor bearer, and has too often weak vines. St. Regis was a failure last year in certain sections where other varieties did well.

Among purple varieties Shaffer still seems to be in the lead, though in some sections Columbian is more popular. The old Gregg is in most sections still holding its own. The black varieties bear somewhat heavier. I find, than do the red and the purple, but command a lower price; hence they tend to balance off with the others.

Growing Sweet Potatoes

By F. G. Heaton

HERE is a trick in growing sweet potatoes the writer never heard of until the past summer. In making ridges for the plants, open a furrow and place fertilizer—preferably old and well-rotted cow manure—in the bottom of the furrow. Then run the plow along the sides of the furrow and throw up the ridges. Set the plants about a foot to eighteen inches apart in the ridges, setting them deep, and puddling the earth about them with about a quart of water to each plant. When the plants have grown to the length of about three feet or so, begin coiling them up around their own roots. Take the long runners and, handling them gently so as not to break or bruise them, coil them around and around, the stems of the plants forming the pivot or center of the coil. As the runners grow, keep them coiled up so as to form a dense mat over each hill. The result is that the runners or vines do not take root at the joints and form clumps of little, worthless tubers that suck much of the strength from the real "sweets," but concentrate all the growth in the actual hill of tubers, which will, when dug, be found to be all in a clump, much larger and smoother, and of better quality. The coil of vines serves to protect the soil of the hills from the heat, keeps the earth moist, and makes cultivation easier. This method of cultivating sweet potatoes was shown to the writer by an old negro gardener who has the reputation of growing the finest sweets produced in the entire region in which he lives; and although sweet potato ridges in which each hill is crowned with a compact coil of vines present a queer appearance, the results certainly speak for the value of the idea.

AN AGRICULTURAL journal of Queensland, Australia, tells of the development there of a potato which is entirely immune to blight. American potato breeders have done the same thing, but the blightless strains do not remain immune. Some plant specialists believe lack of certain soil elements encourages blight.

A NUMBER of Missouri orchardists complain that rabbits are attacking their fruit trees which have been coated with protective washes, and are injuring the washed trees even more than those that were unwashed. Even rabbits, it seems, can develop a taste for drugs and unsavory concoctions.



Sabbath Day on the Farm

By Edgar L. Vincent

THE farm must have its Sabbath Day. When the time comes that all days are alike—no time to stop and rest and think of better things—the world will go back to the shadows of the dark ages. A Sabbath Day there must be.

But what shall the boys and girls, the young folks and the old folks, do on this Sabbath Day? Sometimes we hear people say that the gloomiest days they ever had when they were young was when Sunday came round and they had to sit around and be still. No doubt this is so; and yet, it is not necessary to go far to the other extreme and let down the bars to everything that is noisy and rough and boisterous, so that the Sabbath Day will be only a day for merry-making.

This is the way we may bridge over this day and make it a perfect beauty spot in the life: Who of us knows and can name the leaves of all the trees that grow near us? Or do we know the grasses and the flowers of the farm? Have we even a speaking acquaintance with the birds and the little four-footed creatures that live in the great out-of-doors? None of us can say yes to this in its truest and best sense. So here is the thing to do: Get a good book that tells about these things. The stones of the farm, too, may be a study of the highest interest. Go out into the fields and heart to heart study Nature and her works. We have books in these days that are simply fascinating in their methods of dealing with flowers, trees, birds, and other things in nature.

And all the way along this thought may be kept in mind: These are God's things. He has given them to us to look at, to use, and to help us to think more of Him. How do they do this? You know what the tree does. Tell the little folks about it. Let them know the story of the wheat plants or the corn, or even the grasses. In the stones there is enough for many an hour of thought. It may all be so earnestly, so simply, so reverently done that the hearts of the boys and girls will be turned with joy up to the One who has been so kind to the world. A story, a bit of a song and the trip back to the house will bring the hour to a happy close.

But who shall do this? You, father. You, mother. You, older brother or sister. You will be the better and the happier for it, and it will leave a bright spot in your memory, even down to old age.

"You Help Me to Be Good"

By Mary S. Stover

"YOU'VE been mother's good little girl to-day," a woman whispered as she bent to tuck her child into bed one night.

At once two warm, soft arms reached up and clutched her neck in a smothering embrace while the little one answered, "You help me to be good, Mama, 'cause you always have a smile on your face."

It was a more loving word than true. In that very instant the mother's remorseful thought recalled all too many times when her smile had not been "on." Yet she went down-stairs happy in the knowledge that sometimes, at least, her brightness of face had been an aid to the little daughter's following after righteousness.

Can the people who look into your face and mine say, "You help me to be good"? Blessed indeed are we if it be so.

Goodness, I fancy, is much like belief, which a wise man tells us "is not taught—it is caught." Surely, then, "Her smile helped me to be good" is an epitaph worthy to be placed alongside that classic "She always made home pleasant."

Most of us want to help other folks "to be good." Let's try harder after this to remember the smile or word of cheer which is sweetly impelling toward that end.

Soothing Out "Fool's Hill"

By Edgar Lewis

YOU have heard it said that in every boy's life there is a "fool's hill": a time when the boy acts queer, says queer things, seems sad and silent and sulky. It is a hard time, this working one's way over "Fool's Hill." I know, because I have been over it. Perhaps you who read

this may have escaped. Luckily for your whole future life if you did.

But there are ways of smoothing out "fool's hill" for the young people. I know boys who never had such an experience at all. The days when their comrades were moping about and feeling as if every thing and everybody were against them they look back to as being the best they ever had. How was it done?

A good father can do it. It takes a bit of time, it is true; but it is worth it to level this miserable road and set the boy's feet safely on the highway to manhood, rejoicing. Blessed is the man who keeps close to his boys! Just as long as they feel that in their father they have a real friend that knows how it is himself and *cares*, they are all right. So go with the boys around the farm; see the things they like to see; talk with them as if they were your real chums—indeed, make them so! Keep their minds feeding on the things which will build up a clean, honest life, rounding out in due time in a character that will stand every test.

Mother can do it, so can an older brother or sister, in much the same way the father can. And soon every sign of "Fool's Hill" will be a thing of the past, and life swing out on the road of joy and usefulness and good cheer. There is no finer work in all the world than helping the young folks over this trying time. Better do it than to wear the soul and body out making and saving up a few dollars that are absolutely worthless in the making of a life.

The Happy Lady

By Mary Smith

"MARJORIE paid you a great compliment yesterday," said a young matron to the neighbor who had called during her absence. "She said, 'Mama, it was the happy lady who came.'"

"Bless her sweet little heart!" laughed the neighbor. "Marjorie's right. I am a happy lady."

"Yet I don't see how you can be," objected the young mother. "You haven't had an easy life at all!" she burst out in a rush of indignant pity. "And now that you've lost all your family—"

"Not lost; only lost sight of for a little while," answered the older woman quickly. "Much of my joy comes from thinking of that, and of them. Besides, I have learned to take my share of delight in all the beautiful things that are given us 'richly—to enjoy': sunsets and sunrises, though I'm usually too lazy to see them; the deep blue of midday and of evening; fleecy cloud boats overhead; green grass and posies at my feet; the smiles on children's faces, and their bubbling, innocent laughter; bird songs and flashes of color among the trees; a host of dear, good friends—and the closest Friend of all! Why, little neighbor,

"The world is so full of a number of things,

I'm sure we should all be as happy as kings!"

Proverbial kings, of course, since real, matter-of-fact kings haven't an opportunity to know half the joy that we humbler folk may have for the taking."

Father's Boyhood

By Carlton Fisher

"WHEN I was young," my father said,

"At five A. M. I jumped from bed And fed the stock and brought in wood And did just everything I could."

(Then Grandma smiled the strangest way But didn't have a word to say.)



"Wild Rover"

"But now most boys aren't worth their salt.

The friends they choose are most at fault, For my best friend I chose a book."

Then Grandma shot the strangest look, And added with the slightest shrug, "Like that you read behind the rug."



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Dear, Tender Day

The Story of a Daughter's Love for Her Mother

By ANNIE HAMILTON DONNELL

EMMELINE THAYER, alone at last, allowed her overburdened heart the solace of a groan. All day, how she had wanted to groan, but had only softly sighed! No one could hear her sigh. It was so very near now, the day Emmeline dreaded—the dear, tender day.

"How can I bear it without Mother?" she thought. For last Dear, Tender Day Mother had been here. They had gone to church together, Mother and Emmeline, and listened together to the beautiful things that the minister said about mothers. Emmeline, this middle-aged, careworn mother herself, had slid a gloved hand under the hymn book and squeezed Mother's thin old hand.

"I'm so glad I squeezed! I'm so glad I squeezed!" sobbed Emmeline in the security of this quiet room. Squeezing had never come easy to her, nor to Mother, nor to any of their race. They loved, but loved silently—a fierce inward flame.

Thinking of it now, Emmeline Thayer could not understand that warm little impulse that had come to her to squeeze, but she felt still—she would always feel—the faint answering pressure. Mother had squeezed back! After eleven lonely months it was a comfort to remember that.

"She knew I loved her—she knew—she knew! But, oh, why didn't I tell her so—in words, 'I love you, Mother.' Why didn't I say it a dozen times a day?—I felt it a dozen times! I lost so many chances!"

Emmeline sat down suddenly on the side of Elizabeth Anna's bed that she had been turning and tossing. It was as though a tremulous old hand gently pressed her down. Mother seemed in the room. Mother seemed saying: "There, there, Emmy, don't fret. I knew all the time you loved me. Sit still and rest a minute now. You're tuckered out."

Yes, she was tuckered out. But it was more than a weariness of body—her soul was tuckered out. Life had dragged for many weeks. There had been sickness in the family—the son twin and little Sarah and their father, one at a time. She ought to be thankful it had been one at a time. Then the spring sewing had kept on and on. There had never been a spring when Elizabeth Anna had shot up so, and down so, out of her last year's clothes, or the twins' things had come out of the summer chest so faded and impossible, or father's shirts so needed replenishing. Emmeline had sat long days and patiently stitched, missing Mother's quiet presence with her, and Mother's willing help. She had stitched so much and thought so much and missed so much that a curious sense of being set apart from the rest of the family had crept over her. She felt a little unappreciated, a little bitter—soul-tuckered as well as body-tuckered.

Last May had been the first time the little town of Purdy had celebrated a Mother's Day; it had been a beautiful little innovation upon the old-fashioned Sundays, and everyone had loved it. Everyone had tried to keep Mother's Day—dear, tender day. Emmeline herself had worn a gay little geranium blossom for Mother. But this May would be very different.

"I shall have to wear a white one," she whispered. "White for dead mothers—oh, how can I wear white!" How could she sit there in the pew, where she had squeezed Mother's hand and Mother had squeezed back?

"Darthea Cobb's mother will be two seats ahead, and the little Keith children's grandmother across the aisle—they can all wear red, red flowers! I shall feel like stopping them when they go past me and whispering 'Say, 'I love you!'' Don't put it off till you get home—now, now! Whisper it now!"

Emmeline got up from Elizabeth Anna's bed and continued her work. Resolutely she turned the key upon those interrupting musings, but all the while she was conscious of the throbbing ache behind the little locked door of her heart.

The daughter twin burst in upon her, breathing wrath:

"Make Jerry stop vaccinating my doll! I can't make him. He keeps right on. She's bleeding all her sawdust out. An' Sarah's crying like everything because he says he's going to vaccinate her. He's the meanest boy!"

Little Sarah burst in, wailing with fear. Elizabeth Anna appeared to add to the din, while upward from some culinary region floated the calm, clear report of Senthrilla, the maid:

"The custard is scorched and there ain't no more aigs."

The business of life closed in upon Emmeline Thayer. She must hide the key of that little locked-up room.

On Sunday morning the usual bustle and hurry of getting ready for church ensued. Where were the gold studs for Father's clean shirt? It did

seem as if people might let those studs alone—oh, was that where they were! But he couldn't put on the new shirt till he shaved—were those twins going to stay in the bathroom all day? Father was the sweetest tempered of men on ordinary occasions, but this was un-ordinary. It was late, and Old Hundred was lame and would limp all the way to church. You couldn't hurry a limping horse. The minister always began terribly on time—would somebody oust out those twins or get the shaving dish and brush?

The twins were in no hurry. Something exciting and mysterious occupied them more than the polishing of small hands and faces. They were whispering.

"Yes, I shall too, with a safety pin!"

"It'll show."

"Let it! I ain't going to have mine drop off, right in the middle o' church!"

"Sh! can't you? 'Lizabethanny said to whisper. . . . Yes'm, I'm coming out. Yes'm, I'm washed. What? No-o, not behind my ears. Nobody'll look behind—yes'm, yes'm, I will."

"Elizabeth Anna, will you see if you can find Sarah's other best shoe? We've looked and looked—"

"I member! It's out in the yarden somewhere. We threw it after Minette."

"Minette? Threw it after—"

"She was ma'id. We ma'id her to Aggie Cobb's husband dolly. An' 'Lizabethanny said to throw a nold shoe—"

"That was your new one. Go and get it this minute! Here put your slipper on."

"Emmie, if I don't get my razor—"

"Children, children, come out instantly!"

"Thout our ears—"

"THOUT your ears," laughed Emmeline Thayer in spite of herself. There was no longer time for little ears—they must trust to kind fortune that no one looked behind. There was only time to hurry-scurry little and big into Sunday garments. A sudden prescience of deliverance came to Emmeline Thayer—perhaps there was no time for her to get ready for church. If she could be spared, just to-day, just this dear, tender day—If she need not listen to the minister say beautiful things about mothers—

"I'll get the family off and if there isn't time for me to get ready, it won't be wicked to stay at home if there isn't time."

But the Thayers always went to church, and she was half a Thayer. Then she might stay at home half the Sundays! Emmeline Thayer's sense of humor was never wholly stifled.

John Thayer bustled out to the barn in his shirt sleeves and bare-headed. The brisk little May breeze stirred what Elizabeth Anna called his scalp lock, which was thin and long. He harnessed Old Hundred and led him round to the piazza steps.

"Come, folks!" John Thayer called. "No time to waste. We don't want to break the family record for being on time. Jerry, tell Mother she'll have to be spry."

But Jerry was too busy to hear and Mother went unwarned. Jerry and the daughter twin were holding a whispered consulta-

tion; there was certainly mystery in the air. Elizabeth Anna and small, placid Sarah had their own secrets down by the pansy bed. Elizabeth Anna's brisk young voice reached John Thayer.

"I'll carry Father's; that's the safest way. Things don't stick to Father very well. An', besides, Old Hundred's a dreadful jogger. Sh', can't you, Sarah?" when only Elizabeth Anna needed sh-ing. Little Sarah was only swaying silently on her stout-shod little feet.

Emmeline came to the door, still in her neat and faded wrapper.

"No, I'm not ready. You mustn't wait, John. I've had such a delaying time! Jerry's collar *wouldn't* fasten—those stiff collars are perfectly maddening on wiggling boys! I'm thankful he only has to wear 'em Sundays. And I found a button off Sarah at the last minute, and Elizabeth Anna's hat elastic was nothing but a string. You drive right along, all of you, and I can ride down with the Cobbs. They're always a little mite late, and their back seat holds three. It's the roomiest back seat—Go right along, Father; please go right along!"

She meant to be quite honest with herself. She meant to get ready if she could. Not only the Thayers but the Coopers—she was a whole Cooper—were a churchgoing race. Habit, and inclination as well, drew Emmeline churchward. It was only to-day, just to-day—

She watched the family surrey disappear down the road, a sunny cloud of dust behind it. The dust spirals seemed to limp too, with Old Hundred.

"They can get along without me," thought Emmeline. She did not mean the dust spirals. "They won't miss me any," though honesty compelled her to remember that they had all called to her as they rode away.

"Hurry, Mother. Don't be late."

"Don't stop to button the top buttons o' your boots," Elizabeth Anna had called. "Bring the buttoner. Your hair looks good enough—don't stop'n comb it."

"The Cobbs'll be along in ten minutes, Emmie. Don't miss 'em."

She turned back into the house and conscientiously hurried, but some weight in her heart loaded down her fingers; they moved heavily. She fumbled buttons and pins. Unreasoning tears got in the way of her vision. Emmeline was undeniably depressed. Life seemed to stretch away from her—a lonely road. Mother was dead and John and the children had ridden blithely away without her, down the church road.

"Emmeline Thayer, you sent 'em away without you! Are you trying to get up a—a scandal? Put on your bonnet! Get your gloves out of that drawer! The Cobbs—"

THE Cobbs were going by the house. Lemuel Cobb was whipping up his horse. It was too late to ride to church with the Cobbs. In spite of herself Emmeline rejoiced. Fate had settled her little problem. She put away her bonnet and slowly drew off her black dress. She would put on her second-best and slip across the field to the little cemetery and spend the morning with Mother. She would take a bunch of geraniums—scarlet ones, pink ones, white. White flowers reminded Emmeline Thayer. Suddenly a new thought darted woundingly through her brain—was she denying Mother before the world? People wore a white rose, a white geranium, in their buttonholes to-day to do honor to a dear dead mother. Oh, Mother was a dear dead mother! Was she failing to do Mother honor? before them all—to show she remembered and honored and loved? She had not thought of it like that. But wasn't she failing to do Mother honor?

Swiftly, very swiftly, Emmeline put on the best black dress again, put on the bonnet, found gloves and handkerchief. She could not hurry fast enough now. Her fingers fumbled with eagerness.

There was a short cut through the fields; she would take the short cut. It ran through the little cemetery and on across more fields, across a corner of pasture, a bit of woods, to the little white church. The Coopers were a fast-walking race. Grandfather Cooper had tramped his ten miles at seventy, and at a splendid clip. Emmeline was glad she was related to Grandfather Cooper. She fairly sped along.

At the cemetery she made a swift little turning to Mother's spot.

"I'm wearing the little white flower for you, dear," she whispered. "I'm going down to show them all."

She was after all not very late. A thin thread of worshippers was still trickling in at the open doors, though the soft drone of the organ greeted their ears. Emmeline joined the thin thread. She walked noiselessly up the aisle toward Father's waving scalp lock. Quietly she slipped in beside him.

The organ-drone ceased. The minister was on his feet. A little white flower was in

EW



Thoughts multiplied in Emmeline's brain and tears in her eyes. There was just love in the world

the minister's buttonhole. It was a beautiful and impressive little service. On all the listening faces seemed to settle down a curious tenderness—on young faces and rugged old faces. The minister's voice was tender.

Emmeline Thayer, in her place beside Father, sat very still, her wet eyes fixed on the crossed hands in her lap. Tears dropped down occasionally, unrestrained. Not once had Emmeline looked up. Her thoughts were of Mother—the one mother the minister seemed speaking of. When he spoke of patience and service and sweet example, it was of Mother he spoke. When he mentioned the little children round a mother's knee, they were herself and the long-ago sisters and brothers. It was a sermon about Mother.

Suddenly Emmeline was awakened to her immediate surroundings, for suddenly a wonderful thing happened. A little voice, whispered, "I love you!" in her ear. She found herself looking down into an adoring little face—the daughter twin's little face.

"I love you!" whispered Elizabeth Anna across the daughter twin's head. She turned the other side and found little Sarah loving her. She knew by the soft little shining in Sarah's eyes. Across the child's lap suddenly reached a big brown hand and squeezed! It was the big brown hand of John. John loved her. It was of her, her, they were all thinking as the minister talked. She was a mother too. It had not occurred to Emmeline that it was also her day—her dear, tender day.

Thoughts multiplied in her brain and tears in her eyes. The feel of John's good tight squeeze and the sound of that little "I love you!" took up all the room of the world. There was no minister preaching, no congregation listening with tender faces—there was just love, just love in the world.

A sense of buoyancy and regeneration swept over Emmeline Thayer. She was no longer discouraged, nor lonely, nor bitter. Warm blood coursed Grandfather-Cooper-wise through her veins, went tramping lustily through. Things she could do for John and the children occurred to her mind in a stream of things. She laughed in her heart as she pictured herself rolling up her Sunday sleeves to begin at once—now! She longed for a kneading board and a cooky cutter.

Then the next wonderful thing—oh, the wonderful thing! It suddenly dawned upon Emmeline Thayer that all her little row beside her were wearing gay flowers for her. Gay, bright flowers for living mothers. She was a living mother. They were honoring her.

The children's faces broke into smiles at her notice of their decorations.

"It was a secret," whispered the daughter twin. "We never let you know. Elizabethanny hrung Father's pansies an' pinned 'em on down here. I love you!" whispered the little daughter twin.

"Oh, little daughter and little son twins! Oh, Elizabethannies and small sweet Sarahs! Oh, Johns!" Emmeline reached blindly for the big brown hand again.

All the room of the world was full of love.

Raising King Corn

[CONTINUED FROM PAGE 3]

previous, as the soil is then in a good state of fertility.

"It is useless to plant corn until the weather becomes seasonable. While it is always best to plant as soon as the weather will permit, it is not well to plant if the ground be wet and cold, just because the time of year has come when corn ought to be planted. In most cases a delay of a few days will do no harm, and may prevent the field from having to be replanted. The seed bed should be light, moist, but not wet, and warm when planted. A check-row corn planter should always be used, and the corn planted in hills rather than drill rows. This is largely a matter of opinion, as some corn growers prefer to drill. I have had experience with both methods, and have yet to see where drilled corn will produce any greater number of hushels to the acre, and a drilled field is difficult to keep free from weeds.

"Just as the young corn is about to come through the soil, I go over the field with a peg-tooth harrow to loosen up the top soil and kill young weeds. I set the pegs to slope backward, and the harrowing does not hurt the corn any to speak of. As soon as the rows can be seen across the field, I cultivate. I put on the guards, and cultivate rather deeply the first few cultivations; after the roots begin to spread I cultivate shallower."

Mr. Prowant thinks that the question of the advisability of cultivating corn after it is in silk is important. He has cultivated corn in silk, and has had both good and bad results from that work. He is inclined to think that if the weather is hot and dry the best plan is to stay out of the field entirely.

A Fake Lung Tester

Boys and Girls Have Fun with This Toy

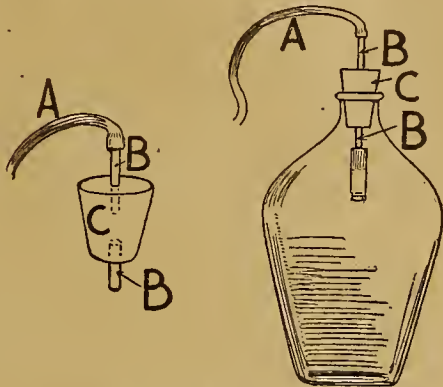
By PARLE W. McCOWAN

THE boy or girl who loves a joke will get a lot of fun out of this simple little contrivance of bottles and tubes which has been jestingly termed a "lung tester."

To make it, procure two hottles, one large and flat, the other a vial small enough to slip readily inside the larger one. Instead of the smaller bottle, a clay pipe may be used.

The other requisites are a well-fitting, not too porous cork (C) for the larger bottle, and the rubber and glass tubing used in one of the old-fashioned nursing bottles. Some drug stores carry these tubings in long pieces and sell them by the inch. If you don't have enough of the tubing to make the lung tester, you can buy it for very little money.

In making, the glass tube (B) is broken into two pieces, one of which should not be over an inch long. The



These diagrams show how to make the fake lung tester

length of the longer piece is immaterial, two or three inches being quite enough, however. Make a deep scratch with a file at the place you wish to break it and it will break off square. This saves a lot of trouble, and may keep you from getting cut on the glass.

With a penknife a slight depression is made in the lower end of the cork, and one end of the short piece of glass tubing is pressed firmly into position in this depression. To one end of the longer piece of glass is attached the rubber tubing (A), while the other end is inserted firmly into a similar depression in the top of the cork.

Thus, the two pieces of glass tubing appear to be only one long piece, passing entirely through the cork. This is the secret that makes of the so-called tester a joke, and care must be taken that there are no actual holes going through the cork to let the air into the bottle. If there are, the tester won't work.

When this is done, fill the large bottle full of water and the vial a little less than half full. Then quickly invert the vial and slip it, upside down, inside the neck of the larger bottle. If just the correct amount of water is contained in the vial—which amount can be determined exactly only by experiment, owing to the difference in size and shape of vials—the vial will not sink to the bottom, but, held up by the air with which it is more than half filled, it will float within the neck of the larger bottle, and the tester is nearly ready to be used.

When this has been successfully accomplished and the vial is floating properly, some means must be found of reducing the contents of the larger bottle until the cork can be inserted easily. To do this a medicine dropper may be used, or one may very gently press the vial downward with the end of the little finger, allowing the water to run over the edges of the large bottle until a sufficient amount has escaped.

When the contents of the larger bottle have thus been lowered, the cork is inserted with its short glass tube resting against the inverted end of the vial and pressing it downward into the water.

If the cork is pressed too firmly into the hottle, the vial will sink to the bottom; but when the pressure is released, by merely loosening the cork, it will rise again to the top.

Another phenomenon, not so easily explained and the source of all the fun, is the fact that when the sides of the large bottle are pressed firmly together with the fingers the vial will sink to the bottom, returning again to the top as the pressure is released.

Thus the joker, with mock seriousness, approaches his victim and expresses deep concern as to the condition of his lungs. "Anyone," the would-be victim is informed, "who has good lungs can blow that vial to the bottom." Then the end of the rubber tubing between his lips the joker proceeds to demonstrate how it is done, making considerable show of effort

until the vial is seen to move steadily toward the bottom—sent there, of course, by the pressure of the operator's hands.

Naturally the victim's curiosity is roused and he wishes to try it also, with the result that, in spite of puffing and blowing until his cheeks are almost ready to burst, the vial still retains its position, much to the enjoyment of the operator, who shows great concern for the weak lungs of his friend.

Little Brownie's Playmate

By Harry W. Frees

THE home of Little Brownie was far, far away in Bowwow-land. She lived in a cute little house among a great many others just like it, for in Bowwow-land all the doggies live in houses.

And there are ever and ever so many doggies there. There are fat ones and lean ones, short ones and long ones, tall ones and small ones. Some of them have black spots on their backs, others have yellow spots, still others have white spots, and some of them have no spots at all.

But strangest of all, the doggies of Bowwow-land all wear clothes. The little girl puppies wear dresses and bonnets, and the little boy puppies are dressed in jackets and bloomers.

Now, Little Brownie had everything that any little puppy could possibly wish for—even in Bowwow-land. She had lots of toys to play with, together with several dolls. And in the back yard she had a sandpile to build castles with and a swing to swing with. But instead of being happy and cheerful she was very, very lonely.

And it was all because she had no one to play with. Of course there were other puppies around with whom she often played games and had the best of times, but what she wanted above all else was a little playmate that would always be with her. And as all the other puppies



Pushed her all the way home

had homes of their own, none of them could play with her but a little while at a time.

One day little Brownie got out her cart and started away all by herself. She wanted to hunt for some pebbles so that she could build a little stone house in the back yard to put her dollies in.

She followed the path that ran down to the brook and then kept up with it as it gurgled its way merrily through the meadow. She looked carefully along the mossy bank, but not a single pebble could she find.

But all of a sudden she came across a whole nest of them—enough to fill her cart. And all of them were round and shiny.

Just as she was stooping to gather them up she heard a funny noise right behind her—just as though someone was crying. She looked carefully all about her, but there was nothing in sight. But the sobbing still went on, and she finally discovered it came from behind a hush growing near-by.

And as soon as she had peeped behind the hush she saw what it was. It was a dear little kitten sobbing as though its heart would break!

"You poor little thing!" said Little Brownie gently. "What makes you cry?" At this the little kitten looked up and saw who it was.

"I want to go home! I want to go home!" was all it could say, sobbing harder than ever.

Now, Little Brownie had a very tender heart, so she at once put both her paws around the little kitten's neck and begged her not to cry.

"If you tell me where you live," she said, "maybe I can help you find your way home."

So the little kitten finally rubbed the tears out of its eyes with one of its tiny

white paws and told Little Brownie all about how she had become lost.

She said she lived far, far away in the land of cats and kittens, and that very morning had been playing in their garden as happy as could be. And then all of a sudden the biggest and fiercest bird she had ever seen had pounced down upon her from out of the sky and caught her dress in its sharp claws.

The next moment she found herself carried up in the air, and the terrible bird flew away with her over the tree-tops. She was so frightened that for a long time she could not utter a sound.

The big bird flew on and on like the wind, and despite all her struggles the cruel, sharp-pointed claws only clutched her tighter. After a long, long time she



Would often have tea together

found herself sinking gently downward as the great flapping wings overhead became motionless.

And then something happened that filled her with even greater fright than before. Another bird as fierce and strong as the one that held her flew towards them and tried to seize her. Then followed a terrible battle between the two great birds, until finally the one that held her was compelled to loose its hold better to defend itself.

She found herself falling swiftly downward and shut her eyes, expecting to be dashed to pieces on the hard ground below.

But she was not hurt even the least bit as she fell in the very bushes behind which Little Brownie had found her crying. And the soft thick leaves had saved her.

"And now I am far away from home," finished the little kitten, trying bravely not to cry again, "and have no place to go."

"I'll take you home to Mother Brownie," decided Little Brownie quickly. "And maybe she can help you. But first of all, little kitten, tell me your name."

"I'm called Kitty Blue-eyes," replied the little kitten.

"That's because your eyes are blue," said Little Brownie. "And my name is Little Brownie."

"That's because your ears are brown," answered Kitty Blue-eyes.

So Little Brownie put Kitty Blue-eyes in her cart and pushed her all the way home.

Mother Brownie told Kitty Blue-eyes that none of the doggies of Bowwow-land could ever hope to find their way to the land of cats and kittens.

"But you can live with us," said Mother Brownie kindly. "And I feel sure that you and Little Brownie will always be good friends."

So that was how it happened that Kitty Blue-eyes became the playmate of Little Brownie. And never was a little puppy more delighted.

She tried in every way to please the little kitten and make her happy. She gave her one of her dolls to be all her own, together with a woolly sheep and a little toy horse. And Kitty Blue-eyes would sit and play with them for hours at a time, purring contentedly.

They would often have tea together, and sit beside each other at a little table,



Cuddled together in the same bed

with their cup and saucer before them. And when Little Brownie would say very politely, "Will you have milk in your tea, Kitty Blue-eyes?" the little kitten would answer in quite as polite a manner, "Just a little, if you please."

And when bedtime came, Little Brownie and Kitty Blue-eyes would cuddle together in the same little bed and go sound, sound asleep.



How to Use Canned Goods

By Mrs. R. R. Williams

IF ONE desires to use canned vegetables and fruits, whether home or tin canned, there are a few firm resolutions to make. First, everything must be removed from tin cans the instant they are opened.

Perhaps, even before this resolve there should be one as to the buying of the goods in the first place. It never pays to buy cheap stuff, and it pays to buy wholesale rather than a can at a time. Twelve separate cans of medium-grade corn, for instance, cost about \$1.20 at the very least. One dozen cans may be bought at a wholesale or, rather, a jobber's price of 95 cents a dozen. Your \$1.20 will buy one dozen cans of first-quality corn, without the cob.

Even the best grade of corn, as well as other vegetables, requires careful handling to give it the proper flavor. No one would think of serving green corn in any form without seasoning; the canned product even more requires it, as much of the flavor is lost through the long cooking necessary to keep canned vegetables. Corn served with pepper, butter, and celery salt is a very different article from that merely turned out of the can and heated. The addition of canned Lima beans makes a delicious succotash, though the beans alone are disappointing.

The best grade of peas is very satisfactory, retaining much of the fresh flavor. Of course the liquid in the can should never be used, as it contains a preservative, and the peas should be thoroughly rinsed in cold water before heating in butter or cream.

String beans need something to take away the flat canned taste; ordinary seasoning does not do this. Fry a few slices of bacon, then heat the beans in the bacon fat, not cooking them, but merely stirring and heating thoroughly. This is an improvement on the usual method of creaming them.

Canned tomatoes usually need a large amount of butter, a little salt, pepper, sugar, and either finely cut celery or celery salt. Bread crumbs also improve them.

Asparagus, like string beans, loses flavor, but may have other flavors added. Take asparagus out of the can and heat in the oven in hot water. Brown a lump of butter with pepper, a little salt, and onion salt or onion juice; pour over the asparagus and serve with cheese straws.

Spinach may be heated in bacon fat in the same way as string beans.

All canned meats need the addition of other flavors. Beef calls for tomatoes, onions, pepper. Lamb, veal, and chicken are best curried and served with rice.

Too few people are familiar with the use of curry powder. A dish like the following may be made with any kind of canned meat, fish, or canned lobster even, and is an excellent one for emergencies: Melt a large lump of butter with one tablespoonful each of flour and curry powder, seasoned with onion salt and pepper; stir in one cupful of hot water and cook until it thickens slightly. Pour over the heated canned meat or fish and serve on hot toast.

Soups are better when added to freshly made soups, and they in turn are improved by a can of the more concentrated article. My first experiment in a region where fresh meat was scarce was in using a can of beef soup to give flavor to a vegetable soup of carrots, onion, turnip, and potatoes. Celery, onion, and parsley added to chicken soup improve its flavor and lessen the cost of the canned article.

Fish needs the addition of some green, lettuce or otherwise; or it may be served in soufflé. Used alone it is unappetizing. Salmon soufflé is made by flaking a can of salmon; put in a baking dish with one-half cupful of milk, salt, pepper, and four well-beaten eggs. Cover with buttered cracker crumbs and bake twenty minutes. Garnish with parsley before serving.

Most of the above suggestions are for the use of vegetables and meats directly from the can. Of course, greater variety and more delicate seasoning can be obtained by using them in dishes requiring combinations with other food products; for instance, corn oysters, corn soufflé, corn chowder, salads with peas, string beans, tomatoes, asparagus, spinach, canned fish, as a basis; meat pies, and pot roasts. These all require a little

more time, however, and for a hurry-up meal the hostess can merely try to disguise the most obvious emergency dishes.

Probably the majority of people serve canned fruits as sauce, in their original form. The more expensive varieties are much better, and go much farther, when worked over into a dessert whose origin is not so well known. Canned peaches, pineapple, or strawberries may be used in shortcake, if carefully handled and served with whipped cream. The syrup may be drained off to be used as flavoring for custards, gelatins, etc., or it may be cooked with a little more sugar till more syrupy, and poured over the shortcake. The list of custards, creams (either chilled or frozen), gelatins, in all plain and fancy forms, using canned fruits as a foundation, is endless. Canned berries, besides being used as sauce and as pie material, are excellent in this pudding; canned peaches may also be used: Put a pint of berries into a baking dish; cover with the following batter: mix one egg, one-half cupful of sugar, one teaspoonful of shortening, one-half cupful of milk, one teaspoonful of baking powder, and enough flour to make as thick as cake batter. Bake forty-five minutes. Serve with a sauce of one egg, one-half cupful of sugar, and one-half cupful of boiling water or hot fruit syrup, well beaten together.

Household Hints

To make fire burn, take old jar covers from fruit jars or pieces of zinc and put in stove. This dissolves the soot.

E. J. P., Florida.

Hanging Garments in Small Space—Obtain a piece of small pipe, small enough so the hooks of coat hangers will go over it easily, and have the pipe short enough to fit in any closet. Run through this a rope or wire and fasten the ends to the hooks usually found in every closet, slip coat, skirt, or trousers hangers over this and they will keep their shape much better than when against the wall.

G. L., Vermont.

To Separate Two Glasses—If two glasses stick together, they may be separated by filling the inner one with cold water and placing both in a pan of hot water.

Mrs. R. P., Ohio.

To remove mildew from linen or other wash goods, rub the part with some chalk or salt and expose to the sun. Repeat this several times and then rinse in cold water.

Mrs. I. L. C., Nebraska.

Boil the Clothesline—Always boil a new clothesline before using it. This prevents the line from stretching and makes it last longer. To clean a soiled line wrap it around a washboard and scrub it with soapsuds.

Mrs. R. P., Ohio.



Four Skirts from One Pattern

By Lillian Grace Copp

ANY woman who makes her own dresses can easily secure several styles from one pattern. I purchased a seven-gored skirt pattern, using a model that had a distinctive style and would fit perfectly. I made the first skirt exactly like the pattern, and it was so pretty and elicited so many compliments that I decided to use the pattern again.

To vary the style for the second skirt, I cut the front panel sufficiently wide so I could stitch in one-fourth inch, forming a tuck on each side. Then I cut a yoke six inches deep, letting it run from one side of the front panel to the tuck on the other side of the panel, but did not cross the front.

My third skirt was of rather expensive voile, but I was so pleased with the pattern that I determined to use it again. I cut and stitched on the front panel precisely as I had done with my second skirt, but cut the sides and back sufficiently long to allow a three-inch hem, and just above the hem put in a three-inch tuck, letting tuck come to the front panel on either side. I placed the tuck close to the hem, and gave the effect of two three-inch tucks, rather than that of a tuck and a hem. My front panel was perfectly plain.

My success with the three skirts already made gave me confidence to attempt another variation. To secure the style wanted for this washable skirt, I seamed the panel on the right side just as I did on the sides and back, then stitched in the left side to form a tuck one and one-fourth inches deep. When the skirt was finished I covered washable molds with the cloth, and let them run from the top of the hem to the waist on the left side.

Recipes

Toasted Marshmallows—Two cupfuls of sugar, one cupful of boiling water, stir until dissolved; then cook, without stirring, until it hairs. Dissolve two tablespoonfuls of gelatin in six tablespoonfuls

of cold water. Pour sugar over gelatin and stir until too stiff to stir longer. Add flavor to suit taste. Then pour in pans dusted with powdered sugar, and when cool cut into squares. They should stand a day or two before toasting. To toast: Place a good-sized kettle or frying pan on the stove and put a cupful of ground cocoanut, not shredded, in it. The shredded can be used by gridding through a food chopper. Stir constantly until it is a deep brown. Lay a wet cloth on the table and roll each marshmallow until slightly moistened, being careful not to get too wet. Roll them in the hot cocoanut until well coated. The cocoanut can be placed on the stove from time to time if it gets cold. Marshmallows are tenderer and more palatable when they are toasted.

Mrs. E. A. L., Oregon.

Soda in Mayonnaise—In making mayonnaise, add a pinch of soda to the vinegar and you never will be troubled by the curdling of the dressing when cooking.

Mrs. I. L. C., Nebraska.

Graham Cake—Two eggs, one cupful of sugar, one-half cupful of butter, one cupful of sour milk, one teaspoonful of soda, two teaspoonfuls of cream of tartar, and two cupfuls of flour—one cupful white and one cupful well-sifted Graham or whole-wheat flour. Sift soda, cream of tartar, and flour together several times. Flavor if desired. Bake in moderate oven.

Miss A. L. J., Tennessee.

Housewife's Letter Box

Keeping Cider

I should like to ask if you know of any recipe to keep cider from fermenting and absolutely sweet. We are fond of sweet cider, but have no use for it when hard.

P. R. S., Ohio.

THE only satisfactory way of preserving cider in its sweet, fresh state is to treat it the same as grape juice is treated.

Take the cider as it comes from the press and gradually heat to a temperature of 170 to 180 degrees. Care should be taken not to heat it to more than 180 degrees, else the flavor will be harmed. After the temperature has been held at that point for fifteen minutes, the juice is bottled at once in clean, air-tight bottles that have been previously scalded and are hot when the cider is introduced.

Cork with stoppers that can be pushed into the neck of the bottles a little below the neck of the rim and fill the small cavity with paraffin.

Some Southern Authors

Please send me a list of Southern authors.

Mrs. S. N., Texas.

WE HAVE not been able to discover any classification of authors by localities in which they write, but we are very glad to mention some of the well-known Southern writers. Here is a short list: John Fox; James Laue Allen; Ellen Glasgow; Fannie Heaslip Lea; Julia Magruder; Joel Chandler Harris; Mary Johnston; Thomas Nelson Page; Amélie Rives.

Two Questions

Can someone tell me how to make mustard-sardine fish? N. W., Wisconsin.

I would like to know some good recipe for making root beer. M. B., Louisiana.

New Puzzles

Very Much Mixed Tea

The Chinese revel in mathematics, and every merchant is an expert juggler in figures as well as in weights and measures. Here is a puzzle in mixed tea which a Hongkong shopkeeper recently sprung on a member of a tourist party.

It seems that the "Chink" sold a popular mixture of two kinds of tea, one of which cost him five "bits" the pound, and the other three bits. He mixed up 40 pounds, which he sold for six bits a pound, gaining a profit of 33½ per cent. Now can you tell how many pounds of the five-bit tea he used in the mixture?

Answers to Puzzles

Puzzles Printed Last Issue

Studies in Botany

The botanical studies are: Fir, beech, pine, lime, spruce, pear, yew, hop, aspen, leek, willow, brakes, dogwood, cattails, plane tree, leatherwoods, the madder tree.

E. W.

Nightgown Yoke in Bowknot Pattern



THE June bride's trousseau will not be complete without this attractive filet nightgown yoke in the bowknot pattern. For the complete directions send six cents in stamps. Address your letter to the Fancy-Work Editor, Farm and Fireside, Springfield, Ohio

GLASS OF WATER Upset Her.

People who don't know about food should never be allowed to feed persons with weak stomachs.

Sometime ago a young woman who lives in Me. had an attack of scarlet fever, and when convalescing was permitted to eat anything she wanted. Indiscriminate feeding soon put her back in bed with severe stomach and kidney trouble.

"There I stayed," she says, "three months, with my stomach in such condition that I could take only a few teaspoonfuls of milk or beef juice at a time. Finally Grape-Nuts was brought to my attention and I asked my doctor if I might eat it. He said, 'yes,' and I commenced at once.

"The food did me good from the start and I was soon out of bed and recovered from the stomach trouble. I have gained ten pounds and am able to do all household duties, some days sitting down only long enough to eat my meals. I can eat anything that one ought to eat, but I still continue to eat Grape-Nuts at breakfast and supper and like it better every day.

"Considering that I could stand only a short time, and that a glass of water seemed 'so heavy,' I am fully satisfied that Grape-Nuts has been everything to me and that my return to health is due to it.

"I have told several friends having nervous or stomach trouble what Grape-Nuts did for me and in every case they speak highly of the food."

"There's a Reason." Name given by Postum Co., Battle Creek, Mich.

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest.

Do You Want to Save Money?

- Do You Want Stylish Clothes?
Do You Want Practical Clothes?
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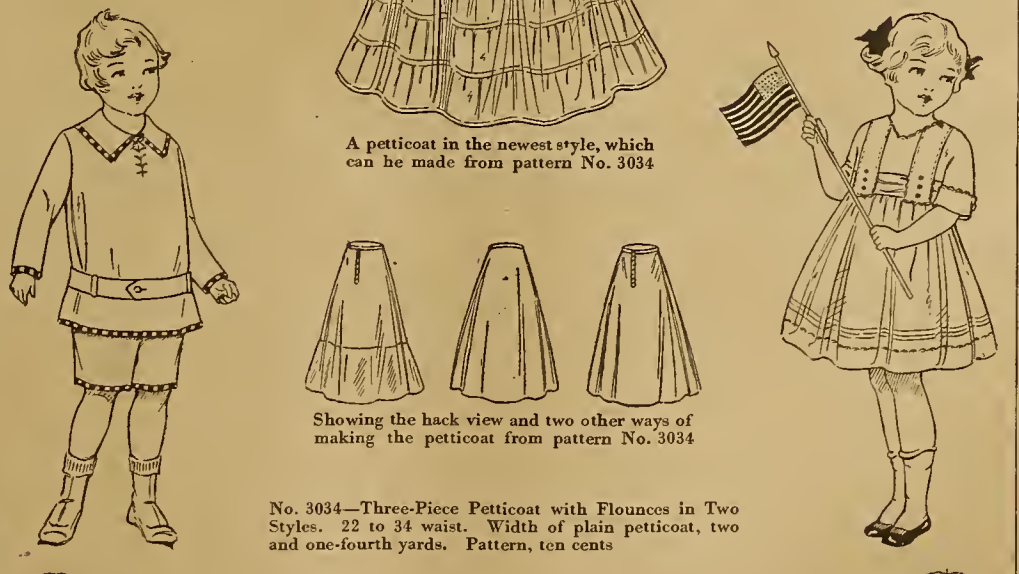
A practical apron which can be made from pattern No. 3038

A dainty chemise which can be made from pattern No. 2918



Waist No. 2851
Skirt No. 2852

Waist No. 3022
Skirt No. 2938

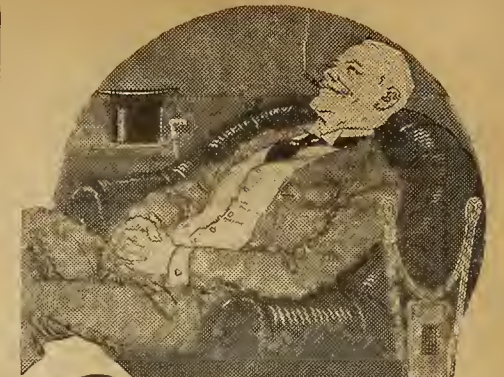


A petticoat in the newest style, which can be made from pattern No. 3034

Showing the back view and two other ways of making the petticoat from pattern No. 3034

No. 2875—Boy's Middy Blouse with Straight Trousers. 2 to 8 years. The price of this pattern is ten cents

No. 2877—Girl's Dress with Strap Trimming. 2 to 6 years. The price of this pattern is ten cents



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Send 10c for 1 year's subscription to Boys The Country Boy, a large 16-page magazine chock full of dandy stories, big departments on Mechanics, Stamps, Corn Clubs, Boy Scouts, Poultry, Electricity, Gardening, Photography, etc. Just the kind of reading matter you'll enjoy. This fine magazine sent one year on trial for only 10c. (Canada 20c.)
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**No such power
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As a rule automobile prices vary according to power.

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35 horsepower

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Because we build twice as many cars as any other producer of automobiles of like class—

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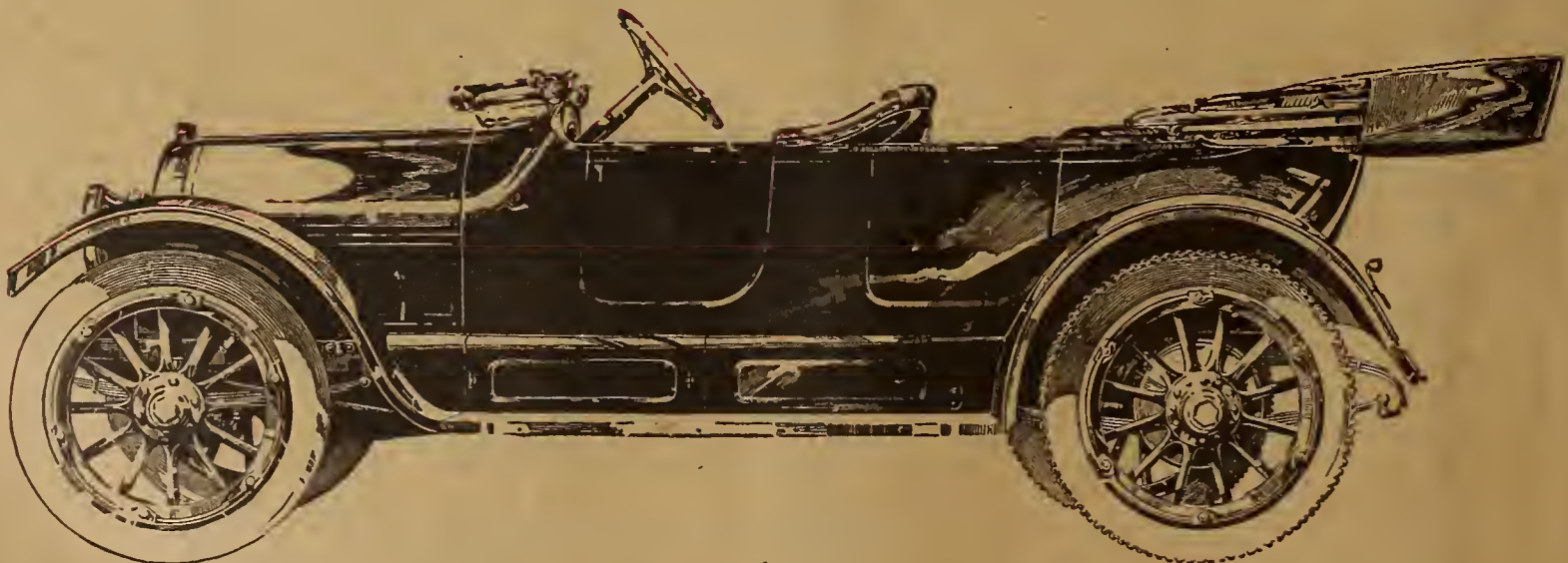
Another heavy shortage this spring is almost certain.

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MAY 18 1916

U. S. Department of Agriculture

FARM *and* FIRESIDE

The National Farm Paper - Twice a Month

ESTABLISHED 1877

5 cents a copy

Saturday, May 20, 1916

Eastern Edition



PHOTOGRAPH BY, C. A. PURCHASE

Who Said Dogs?



Which?

Of course, you'll want at least one serviceable suit for "all occasion" use this spring.

You have more room for choice this year, for we secured a beautiful new Clothcraft gray serge suit, "6130," from the same house that makes the well-known "5130" Blue.

You'll wonder how it's possible to get so much good style and careful workmanship for \$15.00.

It's because the makers have specialized on medium-priced clothes for 70 years. The Clothcraft factory ranks among the foremost in the country in scientific methods of manufacture.

It's a case where good wages, fair treatment and high ideals have produced better quality at lower cost.

Blue or Gray—\$15.00—which shall it be?



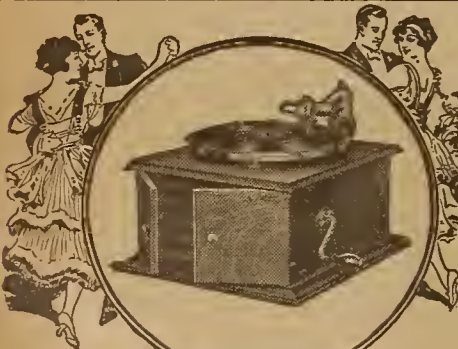
CLOTHCRAFT SPECIAL SERGES
6130 \$15 5130 \$15 4130 \$18.50
Gray Blue Blue

CLOTHCRAFT CLOTHES
\$10 to \$25 Ready to Wear

Made by The Joseph & Feis Co., Cleveland

The Clothcraft Store

(IN YOUR TOWN)



Victrola IV, \$15
Other styles \$25 to \$400

WITH a Victrola in your home you can dance whenever you wish.

The Victrola brings to you all the newest dances, played by bands and orchestras noted for their superb dance music.

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Victor Talking Machine Co.
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Victrola



The Editor's Letter

Improvements Add Much to Country Charms



THE word efficiency is a hard-worked term of late years. From railroad-ing to rug-beating greater efficiency has been and is the slogan of all who are ambitious for results. But in our rush and scramble for results I am sure there is need that we should revive the commonplace term "Planning." If we can make sure of careful and wise planning, efficiency will generally take care of itself. The very haste and stimulus of our modern life interferes with successful planning. On every hand I see hurry and worry making lives miserable and altogether unsatisfactory largely because planning has been neglected. Even undertakings intended to endure for a generation and longer are so often set off at half-cock rather than delay for needed planning.

Let me illustrate with two concrete cases well known to me. One is a house where the kitchen, pantry, and dining-room were built without a definite plan for economizing time or saving steps. The woman who must work in this house travels many unnecessary miles every week just in the ordinary course of cooking the meals, setting the table, and washing and putting away the dishes. The well, the cistern, the woodhouse, were also located without much thought to her convenience, and in consequence her aching back and arms must continue to carry wood and water many additional miles week after week.

Another common example of the absence of planning is the hit-or-miss arrangement of the stables and poultry houses, granaries, tool houses, windmills, and watering troughs. Should an accurate reckoning be made of the unnecessary steps, loss of time, and waste of strength that result in a month or a year and a statement showing such waste be placed before the owners of farms, they would gape in astonishment.

The other case is a house located not many miles from the one just described. Both are farmhouses whose owners built with the intention of making permanent homes. But the last mentioned was longer in the planning than in the building. Mother, father, son, and daughter studied their building problem from all angles, off and on for nearly a year before the builders were set to work. When ready to build, their plan was definite and mature. An experienced progressive builder went carefully over their work to pass on the practicability of their plans. His verdict was, "The plan can be followed all right, but the cost will run from \$200 to \$300 above the average farmhouse of the same size." This increase in cost had been anticipated and was willingly paid, for they were getting just what they were after—comfort, convenience—running soft and hard water, furnace heat, electric lights, convenient bath, hardwood floors, rugs but no carpets, small, well-arranged kitchen, commodious, convenient pantry, and laundry-room. The wife and daughter assured me their housework was almost cut in two, and the mother believes ten years have been added to her life.

Going from house and farm planning to a broader field: there is no longer any excuse for the antagonism and jealousy which formerly often existed between country, town, and city. A prosperous country district insures prosperity for near-by towns and cities, and good legitimate business in cities and towns furnishes a better outlet for farm products.

With this thought in mind I want to outline an idea on helpful community planning. It must be admitted that some of the more progressive cities and towns are taking the lead in planning to improve community conditions. This city of Springfield, the home of FARM AND FIRESIDE, is one of them.

Planning Makes Big Changes

The delegations of FARM AND FIRESIDE subscribers who visited Springfield a few years ago were disappointed to find a prosperous city full of hustling manufacturing enterprises (Springfield stands close to the head in agricultural manufacturing) having poorly paved, uninviting streets, sidewalks out of repair, many business places in need of improving and

beautifying, alleys and vacant lots uncared for, etc. But what a transformation a few years of wise planning and co-operative community work has wrought! The commission plan of city government recently adopted in Springfield is responsible for most of the changes.

I have not lost sight of the fact that planning to improve country conditions is also noticeably on the up-grade. In portions of Massachusetts, New Jersey, New York, and Pennsylvania encouraging progress has been made. Some communities in these States are wide awake with country people and town people working shoulder to shoulder to make their entire communities as near a reasonable perfection as wise planning and co-operative effort can make them.

Of course the roads come first in importance. Everybody—farmers and city folks alike—has to use the roads. For that reason the first planning and work are usually directed toward road improvement. After the roads are put in good condition, then the roadside, road fences, trees, and shrubbery come in for attention. The community ban is then directed against disfiguring signs, unsightly rural mail boxes and posts. From these it is a short step to improving the appearance of stockyards, stables, out-buildings, lawns, and home grounds along the roadside.

When once this community idea for improvement gets well under way, it gradually sweeps all opposition before it. When Neighbor Smith's fences, buildings, and yards become a restful country picture instead of an offense to all passing eyes, Neighbor Jones cannot long stand the comparison, and falls into line.

Sell Farms for More Money

One unfailing incentive to this kind of improvement is the opportunity that is sure to come to Neighbor Smith and Neighbor Jones to sell their farms at an attractive advance in price. I have personal knowledge of cases where spare time and labor for a few months and investment of from \$100 to \$300 in fence and building repairs, shrubbery, flowers, and attractive lawns have advanced the selling price of farms from one thousand to two thousand dollars. The only fly in the ointment where such improvements have been brought about is the raising of the tax rate to match the higher valuation. But when once the improvements are made and a pardonable pride in the improved surroundings is felt, a few dollars of added taxes don't cut much figure. Indeed, the possession of a home and farm in which such pride is justified stimulates interest in better farming, and the better farming begets a larger income with which to pay the additional expense. And there is all the satisfaction and happiness in addition.

So far-reaching is this matter of better planning that I can only scratch its surface in a letter of this length. The object of all the new introductions like county agents and teachers of home economics is largely to get people to think and plan their work more carefully. We cannot expect to get the most out of country living until we are willing to take advantage of all the aids that science and wise practice can furnish. In this effort to make farm life more enjoyable and satisfying it seems to me what we most need is the habit of looking at the commonplace matters from different angles. Why should we not take advantage more often of the beautifiers nature furnishes ready to our hand? Trees, shrubs, vines, ferns and flowers, and abundant space for lawns, groves, gardens, arbors, and the like.

If we can get the young people interested they will spend many an enjoyable evening in working out plans for improvements, and it goes without saying that whenever our boys and girls are actually at work planning and laboring for more pleasant homes and better farms and more attractive communities they will undergo a radical change of heart in regard to forsaking the farm for the city.

The Editor

The Personal Test

There's a vast army of people who have made a personal test and have regained comfortable health by quitting tea and coffee and using

Instant Postum

The reason is an open secret: Tea and coffee contain the cumulative drug, caffeine—a common cause of headache, nervousness, heart flutter, biliousness, sleeplessness, and other ills. Postum is entirely free from any drug or harmful substance.

Instant Postum is a delicious beverage made from wheat with a bit of wholesome molasses—a pure food-drink that has helped thousands on the Road to Wellville.

"There's a Reason"

Delivered TO YOU FREE
on Approval and 30 days' Trial



SEND NO MONEY but write today for our big 1916 catalog of "Ranger" Bicycles, Tires and Sundries at prices so low they will astonish you. Also particulars of our great new offer to deliver you a Ranger Bicycle on one month's free trial without a cent expense to you.

BOYS you can make money taking orders for bicycles, tires, lamps, sundries, etc., from our big handsome catalog. It's free. It contains "combination offers" for re-fitting your old bicycle like new at very low cost. Also much useful bicycle information. Send for it.

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MEAD CYCLE CO., Dept. D83, CHICAGO, ILL.

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On Skids With **BUILT-IN MAGNETO**
2 H.P. \$66 - 6 H.P. \$119
ALL F.O.B. FACTORY
Effective April 20, 1916

The one great, convincing engine value
"Z"
The new FARM ENGINE

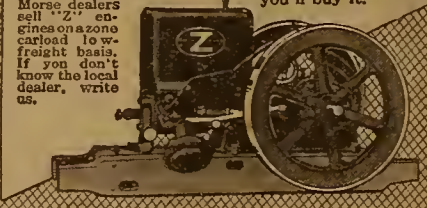
Fairbanks-Morse quality — service — dependability — at a popular price, tells the story.

"More than Rated Power and a Wonder at the Price"

Simple—Light Weight—Substantial—Fool-proof Construction—Gun Barrel Cylinder Bore—Leak-proof Compression—Complete with Built-in Magneto. Quick starting even in cold weather. Low first cost—low fuel cost—low maintenance cost. Long, efficient, economical "power service."

See the "Z" and You'll Buy It

Go to your local dealer. Compare it on merit, by any standard. See the features that make the new "Z" the one best engine "buy" for you. When you buy an engine from your dealer you deal with a local representative of the manufacturers. He stands behind the engine he sells. He's responsible to you. He's at your service to see that you are satisfied. See the "Z" and you'll buy it.



You are sure of a square deal if you mention Farm and Fireside in answering advertisements.

E W

FARM and FIRE SIDE

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SATURDAY, MAY 20, 1916

Published Twice a Month

Marketing Your Live Stock

What the Buyers' Requirements Are; How to Get the Highest Prices

By JOSEPH A. RICKART

IT IS easy enough to go through the form of buying cattle, hogs, or sheep, but to be compelled to buy live stock on its merits as determined by the ability of the meat to find a market outlet at a profit is quite a different matter. It is because buyers for packing houses are held to strict accountability for every purchase that they show what sometimes seems to be extremely cold discrimination when bidding on live stock. This discrimination is apt to appear without reason to the seller, in which case it arouses only resentment; whereas, it should cause him to look carefully for a reason. The place to look first is touching the merits of the stock offered for sale: Has its value been overestimated?

Theoretically every grade of live stock has a true market value. This does not work out in fact, because at a large market, where there are many buyers, any drove of cattle, hogs, or sheep is worth more to a buyer who has a special place for it than to one who can use it only in an ordinary way. It is the function of the commission salesman to know which buyer wants a particular class of stock most, and to sell to him. A packer-buyer or an order buyer may have a special order for prime baby beef, or for a carload of topnotch steers, or some particular grade of hogs or sheep. Naturally he will be willing to pay a little more for something that suits his requirement than a buyer will pay who can use such a drove of stock only in regular trade channels.

One day in March this spring a salesman was showing some steers to a buyer. The salesman did a lot of talking in promoting the sale.

Salesmen Talk Light Receipts

"YOU know, Charlie, there are 6,000 less cattle today on the five markets than there were last Monday," he said, "and the estimate for to-morrow is light. You'll be buying them higher to-morrow."

"If you had a cooler full of high-costing beef," the packer buyer exclaimed, "and retailers were offering you two or three cents a pound less than cost for it, do you think you'd feel very bullish?"

"Oh, moonshine!" answered the salesman. "Mark my words, the market will close stronger to-day."

Whether or not the market closed stronger is immaterial; the point is this, a buyer is between two fires—the necessity of securing material, and the danger of passing that cost limit where it ceases to be possible to vend the meat at a profit.

The buyer's aim is to get animals that will dress out well—that is, cost as little in the meat as possible. "I don't care what your stuff costs alive, it's what it costs dead that counts," is standard advice from packing-house officials to their buyers. But buyers often badly misjudge their purchases. Since the middle of February this year—that is to say, since the market began to jump on account of scarcity—fast markets have enabled salesmen to "put over" more than the usual number of bad-dressing cattle under the guise of good ones.

On a day recently when there was a sharp advance in prices, two steer buyers for a Kansas City plant were having an argument about the probable dressing ability of a drove of steers that cost \$8.80 a hundred pounds during the day.

"They will dress 57½

EW



Because these hogs were uniform in size, well fattened, and of the same color they topped the market by 5 cents

per cent easily," said the man who had bought them.

"They won't make 57 per cent, for a dollar," said the other.

"I don't want your money at 57, but I'll bet you two dollars they make 57½ per cent."

"You're on," said the other man.

When the dressing sheets were made up the next day it was found that this drove of steers had made only a little better than 56½ per cent, which made them cost as much in the beef as a drove of cattle that were bought the same day at \$9.25 a hundred pounds. Of course, the beef from the \$8.80 drove of steers could not be sold for as much by about 1½ cents a pound as the beef from the \$9.25 steers.

Another pitfall that buyers have to look out for is the matter of fills. A high temperature on Monday and Tuesday, March 20th and 21st, this year cost slaughterers many thousands of dollars, and yielded just that many extra dollars to live-stock shippers. A five-car bunch of Colorado cattle arrived at one of the Missouri River markets on the Monday mentioned

which gained 40 pounds a head over home weights when weighed on the stockyards scales. That amount, added to a normal shrink on Colorado cattle moving to market, was equivalent to a five-dollar bill on every head of cattle in the shipment, for the price was 8¼ cents a pound. The cattle came down from the Ft. Collins district, out of a comparatively low temperature, and as the weather was warm in the lower altitudes they simply could not satisfy their thirst.

There were 45,000 cattle received at the five leading markets that Monday, and although the average fill on cattle that day, above normal, netted considerably less than \$5 a head, the amount was large in the aggregate. Some effort was made to evade the fill by means of a slow market and lower bids, but buyers needed cattle, and there was no chance to enforce either of these buyers' expedients adequately.

On the other hand, commission men at the stockyards must be alert to protect the interests of their consignors. A shipment of cattle from Idaho arrived at Kansas City on one of the first warm days this spring. Having been wintered in a cold climate the cattle had a heavy coat of hair. They reached the market steaming hot, and were licking their hair, and otherwise scratching themselves, like a man wearing heavy underwear on a warm day. Government inspectors held them up temporarily, preparatory to putting them in pens in an isolated section of the yards, where cattle with scabies are yarded. This would mean a depreciation of possibly 50 cents a hundred pounds in the selling price—not that scabies hurts the meat, but because of lack of competition in selling the cattle through not having them in the convenient sale pens. It took quick explanation in strong language from the salesman to make the inspectors realize that it was the sudden transition from a cold region to a temperature of 80 degrees that made the cattle scratch, and not disease.

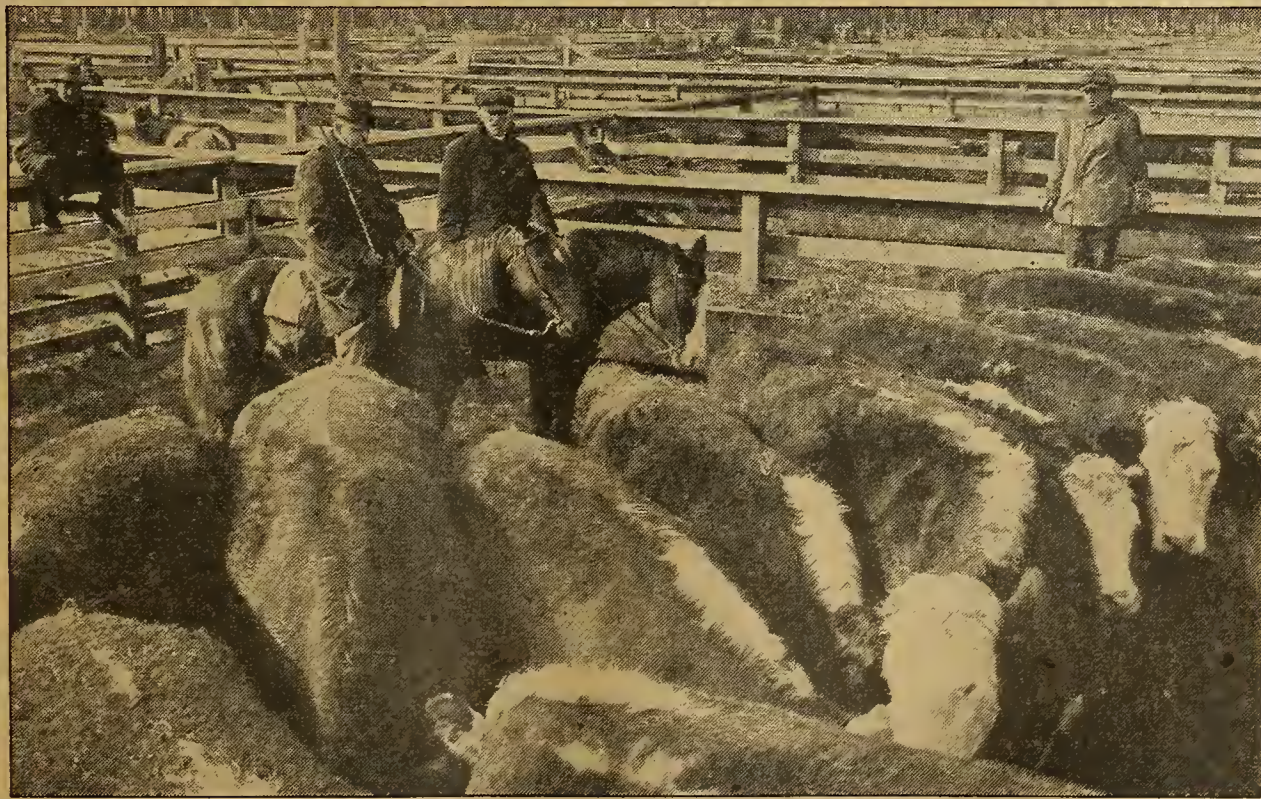
Buyers Know the Good Feeders

MUCH the same perplexities that worry the cattle buyers for packing houses apply to sheep buyers. In both the cattle and sheep feeding business there are feeders who have an established reputation for making their product good. Buyers feel safer when they buy stock consigned from these feeders. The reliable feeders

are more quickly discovered in the sheep barns than in the cattle yards. It doesn't take long to make this kind of a reputation. In fact, every shipper makes some kind of a reputation without effort, the buyers separating the "sheep" from the "goats" among them. Two or three shipments from the same man, perhaps within a week, and he is established if his lambs or ewes kill out good. Buyers study their killing sheets closely, from choice, and also from having their failures thrust before them. They are quick to spot the good feeders, and the stingy ones also. Lambs or sheep from shippers classed as standard often sell before they reach the sales pens, on a quick market.

Hogs offer less chance for individual effort in the feeding process. With them it is more a question of selection before being put on feed, either in the breeding or in buying them as stock hogs. A smooth bunch of hogs of whatever weight is popular at the moment always

[CONTINUED ON PAGE 17]



"Corn-fed beef steers usually sell highest from July to September because finished steers are scarce those months, with another high point early in December for Christmas," said the cattle buyer

Mutual Selling

A Truck Gardener Cuts a Merchant Off His Pay Roll

By F. M. SHERMAN

FROM \$350 in debt to \$1,550 in the bank is the change made in my financial condition by marketing my garden products directly to the consumer, instead of leaving the products with a merchant to sell at a commission.

When beginning in the garden business I followed the usual custom of leaving our products at the stores on sale—that is, what was sold I traded out, or, if I needed cash, got 20 per cent discount. But when I wanted and had to have some money, the merchant was very much incensed that I would take the discount, and after the first few times informed me he would have to have 25 per cent off for cash. At this I rebelled, and he soon managed to crowd me into such a position that my goods were all rotting in the boxes while he pushed the "other fellow's" products on the purchasers. We had another consultation, and he not only asked but demanded the 25 per cent commission or he would use the "other fellow's" products exclusively. I told him I would not be compelled to do anything, much less give the greater part of the crop to get him to sell it. He simply hooted, and asked how I could help myself. The merchant invited me to do better if I could. Knowing as he did that the other members of the merchants' association would give me the same treatment, he was confident that I would have to come to his terms sooner or later.

I then called that merchant's "bluff." I went home and got a load twice as much as I had been taking to the merchant, put it onto the rig and drove to the town at 6:30 o'clock the next morning. By 11 A. M. I was home with the cash proceeds in my pocket.

Often Takes in \$25 a Day

THE first trip I took one horse and the light rig, but the second day I loaded the farm wagon. At 2:30 P. M. I was at home again. After this I made two or more trips every week, for a year, with the farm wagon. Then I got a regular truck wagon, which was not only lighter on the team but much easier to work from. And it displayed the goods to better advantage. Since then I have oftentimes had to make two loads in a day to supply all orders, and have often taken in \$25 at once. My largest daily sale was \$60, which was during the strawberry harvest.

To be sure, this is what many persons call peddling, but they are far from right, as I never peddle anything. I sell garden and orchard products. There is quite a difference between a peddler and a salesman, even though they both handle the same class of goods and work on the street at the same time.

I remember one afternoon last season when, after I had sold one load of tomatoes and had orders for nearly another load at \$1 a bushel, I found a competitor, as I was leaving town about three o'clock, who had been peddling, as he said, all day at 75 cents a bushel and still had one bushel of tomatoes on his rig. He said he had come to town with between six and eight bushels, and while his tomatoes were all equal in quality to my stock, he had them displayed in such a way that they were offensive to the prospective purchaser. I had delivered 25 bushels and received orders for 20 more, which I could not fill, at one fourth more than he was getting for practically the same thing.

He couldn't see how I did it, and as it was useless to try to explain, I just drove home and got out another load to fill those orders, and returned home with orders for more than another full load, while the peddler could not dispose of the remainder of his crop at any price.

I put up nothing for sale which I would not wish to buy and use in my own home, cautioning our help that this is the plan by which they must work all the time. Then seeing that this standard is always maintained, all stuff is made as presentable as possible. Attention is given more especially to the washing, even going so far as to wash the potatoes. This is something the "other fellow" never does, as it seems to him to be the height of folly; but we find it makes sales and brings orders for more.

I never cut prices, but when the merchant or other competitor does, I come to his prices at once without a bit of the usual "jockeying" which the so-called peddlers work as a rule. Not only that, but I have many times had to go back over the first of my route and make good some overcharge I have made on the day's market price, where I had taken more than I was getting before the day closed. I have but one price for the day, though the next day's price may be much lower.

I have not only got out of a rut, but I am leading my patrons out of

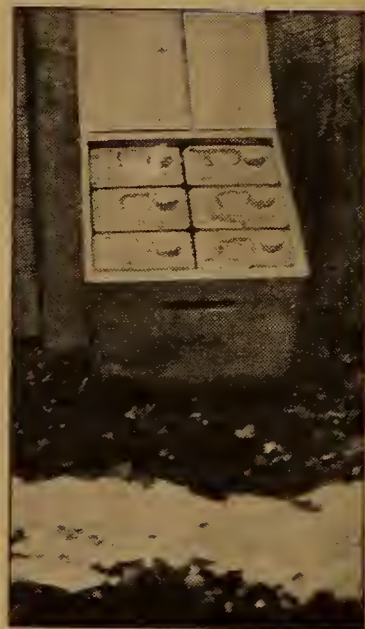
one as well. At the same time, there is a profit for us both. I get as much or more for my stuff and handle enough every day so that the 20 per cent commission which I was paying Mr. Merchant gives me good wages. The customers get the product while it is fresh.

Ask the merchant and he will very likely tell you that he will soon have to have even 40 or 50 per cent, so that he may keep up with the high cost of living. Anyway, I have no intention of giving any discount on the \$1,500 worth of produce which my books show I have been taking each year from less than ten acres, for several seasons.

This matter of the freshness or staleness of vegetables makes the best possible entering wedge with which to gain new customers. Samples of absolutely fresh corn, peas, or beans presented to a prospective customer with the request that a comparison of edibility be made with average quality vegetables of the same variety obtained in stores will nearly always land a new and appreciative customer. I find that the use of my slogan—"Freshness and High Quality Guaranteed"—carries a lot of influence for trade extension.



We like home-made egg cases, and the saving is worth while



Maple syrup goes to our customers packed in this way

Closing the Gap

Find Buyers Who Demand Quality

By MRS. JAMES LAMPMAN

OUR farm is 30 miles from Cleveland, which is our most satisfactory market. However, there are desirable and undesirable ways of selling farm produce even when a good market is within convenient reach. There are plenty of farmers among our acquaintances who are constantly complaining about the same market which we find profitable.

Notwithstanding the fact that Cleveland is a good market, there are too many dealers between producer and consumer. But we are trying to make it our business to get by some of the middlemen.

Each year we have from 1,800 to 2,000 dozen eggs to sell, and no doubtful egg is ever shipped. When estab-

lishing our egg trade we sent cases of eggs to leading grocers who cater to a good class of trade. Eggs in these trial cases were clean, of good size, and well packed. Our offer was to guarantee quality and good appearance in every shipment. This kind of a business proposition, together with an attractive sample, got us an outlet for more eggs than we could supply. By doing our part we find that "once a customer means always a customer." We keep pure-bred Leghorns and Orpingtons, so we are in position to supply light and dark shelled eggs. Each color is kept separate. We get 3 to 5 cents a dozen more than local prices.

We make a nice little saving by making our own egg cases, which are better than we can buy. The lumber used is basswood, and the dimensions are 2 feet 6 inches long, 12 inches wide, and 12 inches deep. The sides, bottom, and cover are half-inch lumber, and ends and center partition one-inch lumber. These cases hold the regulation 30 dozen.

Broilers are another of our poultry products, and weigh about 2½ pounds each July 1st. By marketing the broilers in Cleveland we increased our profits last season \$7.50 over what we could have secured locally.

Another line of marketing improvement that has worked out well is from our dairy. Our first outlet for milk was to the creamery, but the returns were too small, as we lost a valuable by-product—skim milk. Next we tried selling sour cream. This was less satisfactory than the creamery. Then we tried selling cream to an ice-cream and dairy company in Cleveland. During January, 1916, our sales were 270 pounds of sour cream testing 35 per cent, for which we received \$33.27. During February we sold 341 pounds of 38 per cent cream to an ice-cream company for \$55.63. Selling to the ice-cream company enabled us to secure about 8 cents per pound more for the butter-fat.

Still another improvement in the marketing of cream was seals to use on the cream cans to prevent irregularities in weight. Before getting the seals, there were frequently variations of from 15 to 20 pounds per month.

Another product we sell to regular customers is high-grade maple syrup. We tap about 1,000 trees, and are able to sell more syrup than we can make, without difficulty. By selling to customers instead of to syrup buyers, we get an additional profit of about 40 cents per gallon. Syrup is shipped in cases holding six gallon-cans each.

Just Stumps

By N. B. SHERBON

HAVING seen several different methods of clearing land in the FARM AND FIRESIDE, I thought you would likely be interested in the way we got rid of our stumps.

We came West in the winter of 1912-13, intending to buy a small farm and make a home of it.

Small farms were very scarce here, but in March, 1913, we bought 40 acres that had been covered with heavy pine timber. About half the place had been cleared and was in cultivation, but the remainder had had the big timber cut down and sawed into saw logs, which had been left on the ground together with the undergrowth, brush, and stumps.

The improvements consisted of a poorly built barn for eight head of horses and hay, and the frame and floor of a four-room house that was covered with rough boards.

We came on the place the first of the following September, and to us, who were raised on the prairies of Oklahoma, it looked discouraging indeed. But we had all we had ever made invested here, so we had to make good, and there seemed nothing else for us to do but to go to work and make the best of it.

We commenced by clearing the land a piece at a time. We hauled the logs that were fit for fuel to the house, the decayed logs and brush were piled and burned on the ground, also the small pines and underbrush that were pulled out of the ground with a team.

The stumps were burned out by kindling a fire under the edge of each stump with a pitch block, then covering the stump with wet straw or manure. One man can set from 10 to 12 stumps in a day, and if the compaction is kept close to the stump, they will burn out in from three days to two weeks, according to the amount of pitch and moisture they contain, leaving a hole in the ground larger than the stump, with very few roots to bother in plowing. If a stump doesn't contain enough pitch and tar to burn, a stump puller or dynamite is used.

There are no doubt quicker and easier methods of clearing land, but I am sure none are any cheaper for the man with little means. We have now been on the place two years and seven months. We have the land cleared and spring crops planted. We have made our living, finished the house, repaired the barn, and built other small buildings, and feel as though we have a home as neat and clean as any in north Idaho.

EW



"I put up nothing for sale that I would not wish to buy and use in my own home. That is the plan by which I work all the time. Such a policy wins customers"

Retailing Their Own Wheat

When Growers Receive More Money for the Golden Grain

By W. G. HOWARD

WHEAT-GROWING farmers are especially interested in the price of wheat, and while they have no desire to control the price of wheat, they do want to get all they can for the grain they raise. Often in the past it has taken about all the crop would sell for to make a fair living for them.

A few years ago farmers were at the mercy of local grain dealers in the marketing of all of their grain, and also in the matter of feed during short-crop years. In some cases the dealer took only a fair margin of profit, but in many cases he took more than that. Even where the dealer took only what would be considered a fair margin his profits in a year would many times clear his entire investment.

The farmers were not satisfied with this condition or the share they received of the consumer's dollar. As the local grain dealer was the nearest to them, they naturally blamed him for conditions. This resulted in farmers' elevator companies being formed. In most cases these elevators either broke up or, if successful in a financial way, the control soon passed to the hands of a few business men, and the producer of wheat failed to get relief. But out of these ventures there came some good. The farmers got some business experience, and when they tried organizing elevator companies and distributing the profits according to patronage they were successful. This plan was adopted from the Rochdale system, a plan pretty generally understood. The profits, instead of being paid out according to the amount of stock held by each member, are divided according to the amount of business furnished by each member.

This plan of distributing profits is what is known in the wheat belt at this time as the co-operative plan. Concerns cannot use the word co-operative in their corporate name under the laws of some of the wheat States unless they so distribute their profits. When we first began putting this plan into practice we had no law providing for such a company, so that as soon as we were doing enough business to affect the profits of the grain dealers the regular dealers tried to bring into force the anti-discrimination law, claiming that we were rebating to our members, and in that way discriminating. To remedy this we got a law passed making our way of doing business legal.

Distribute Profits to Members

THESE co-operative laws define a co-operative company as one that distributes its profits to members or stockholders: first, by paying a fixed cash dividend on its stock; second, the remainder of its net profits are prorated to its several stockholders upon their purchases from, or sales to, said concern, or both such purchases and sales. The shareholders in any such mutual or co-operative corporation each have but one vote in all matters pertaining to the business of such corporation without regard to the number of shares owned. No shareholder may own to exceed five per cent of the total capital stock of any such co-operative corporation, or own to exceed five per cent of the total capital stock of any other co-operative concern.

Aided by this favorable law, co-operative elevators in the wheat belt States have increased in numbers very fast in the last few years; and where so organized, there never has been one to go into the hands of a receiver. Most of them are on a firm financial basis, with a good-sized surplus fund to cover any possible loss.

Farmers own elevators in many of the towns in the wheat-growing States of the Middle West. In the co-operative company I am in we have prorated more than \$10,000 to the members in the last three years, after putting \$5,000 in a surplus fund.

With co-operative elevators to improve local conditions and save the local dealers' profit, we felt, to make farming as profitable as it should be, that we should have our own terminal institution. And it became a reality.

The terminal elevator was organized on the same plan as the local elevators, with the exception that the capital stock is held by the local elevator companies instead of by individuals. Each elevator company has one vote at stockholders' meetings, and elects a board of directors who have complete charge of the business.

This commission company does a regular brokerage business in all commodities that its members or customers have use for, at regular commission charges, and at the end of the year the profits are prorated back to members the same as in the local companies. Neither the terminal office nor the local concerns confine their business to members, but build up all the trade they can. They do not prorate anything to non-members, however. Instead, the profit of non-stockholders' business is either put into the surplus fund to provide more capital, or is distributed to members with other profits.

The advantage of having our own terminal office is that we can save the commission charges, which amount to no small amount for a year's business. It

also has an advantage over each "local" selling its grain to the highest bidder. We are able to fill large orders for wheat which gets us a better price.

The farmer should not sell his grain nearer than the terminal market, and as he gets more familiar with terminal market conditions he will realize that someone has to hold the surplus grain until it is needed; that the farmer can do this cheaper than anyone else; and that he will be well paid for holding his grain and selling throughout the year instead of rushing it all to market at harvest time or shortly after harvest. The individual farmer cannot ship his grain to advantage, but by co-operating with his neighbors he can do so, and can have, in effect, his own office and business at the terminal market, and know that he is getting for his products all that they are worth on that market.

Making a Change

North Dakota Tries Mixed Farming

By EARL H. TOSTEVIN

CHANGING from wheat-growing to dairying and the growing of wheat, corn, and alfalfa made a difference of \$75,000 in the wealth of the farmer that first made the change sixteen years ago. The farmers of North Dakota that followed the example of John H. Christianson of New Salem became prosperous. Thus, because diversified farming was more profitable it was adopted generally in North Dakota.

In 1883 a band of tradesmen, cobblers, tailors, and laborers, all sons of Germany, organized and emigrated from Chicago to North Dakota. At a point 34 miles west of Bismarck, the state capital, the emigrant cars were switched onto a hastily constructed side track and the new farmers were left largely to their resources. John H. Christianson, who was born in Germany in 1862 and came to Chicago in 1881 an orphan, was in this colony. He filed on a government homestead, and tried wheat crop after wheat crop.

His was the experience of hundreds and thousands. When Providence decreed to send rain at the proper intervals, there was plenty of wheat—and wheat was money. But while there were bumper yields many years, there were many more seasons when the grain shriveled up under the blast of hot winds. Christianson saw the need for a change.

He had attained a reputation for honesty and square dealing, and when he went to a bank and asked for money with which to buy cows, it was forthcoming.

That was the turning point in his life, and the original four cows purchased by him have become historical in western North Dakota.

His next move was to establish a creamery and to instill the belief of his new creed in his fellow homesteaders. It was an up-hill climb. The original colony of Germans had grown. Immigrants had swarmed into the country from Russia, Norway, and Sweden. All were afflicted with the same malady, the same madness—wheat, wheat, wheat.

But he had his following. Then came a day when he was instrumental in the organization of the North Dakota Holstein Breeding Circuit. About 40 head of pure-bred Holstein-Friesian cattle were purchased.

There are 11 creameries within a radius of 30 miles, and 30 miles in North Dakota is but a short drive. The farmers who have followed the teachings of John Christianson have prospered; their homes, barns, and stock are vastly better than the majority. He has taught them to raise corn and alfalfa for feed, the value of the silo, and the value of diversified farming.

But Christianson did not stop there. He was one of a thousand who realized the value of scientific research. He got in touch with the professors of the North Dakota Agricultural College, which was started about that time, and studied avidously. Then he put the teachings to practical use. Christianson put the book farming into practice, and when results were achieved he took his neighbors around and showed them by demonstration. Instead of printed pages and clever talk, he pointed out better wheat and corn.

John Christianson is not rich, because he has given so much of his time to other farmers in North Dakota. But his name is known to nearly every North Dakota rural-school boy, and a farmers' institute is not complete without his name on the program.

North Dakota thirty years ago was a cow State. Thousands and thousands of beef cattle graze over the unfenced prairies. The homesteaders and grain farmers drove them westward. It was a bitter fight for years, but the ranchers lost. Cattle became scarce in North Dakota.

Then when wheat-farming proved uncertain, John Christianson it was who first persuaded bankers to ship in dairy cattle and sell them to the farmers on the installment plan. Dairying is now a state-wide industry in North Dakota, thanks to his work, and failure of the wheat crop does not now spell disaster and poverty, for the dairy will support the family.

Traders' Day Sale

By A. CORNELL

IT WOULD be hard to determine just how much of the average farmer's or tradesman's capital is tied up in articles, or even stock, which, as far as the present owner is concerned, belong to the discard. Few householders but who often find themselves in possession of some article or animal for which they are sure they have no further use. Although it might hold considerable value for someone who would have use for it, yet while that someone might be one of the nearest neighbors, the animal or article would actually

swell the discard of the one, while the other might be scouring the country for just that chance of supplying his need.

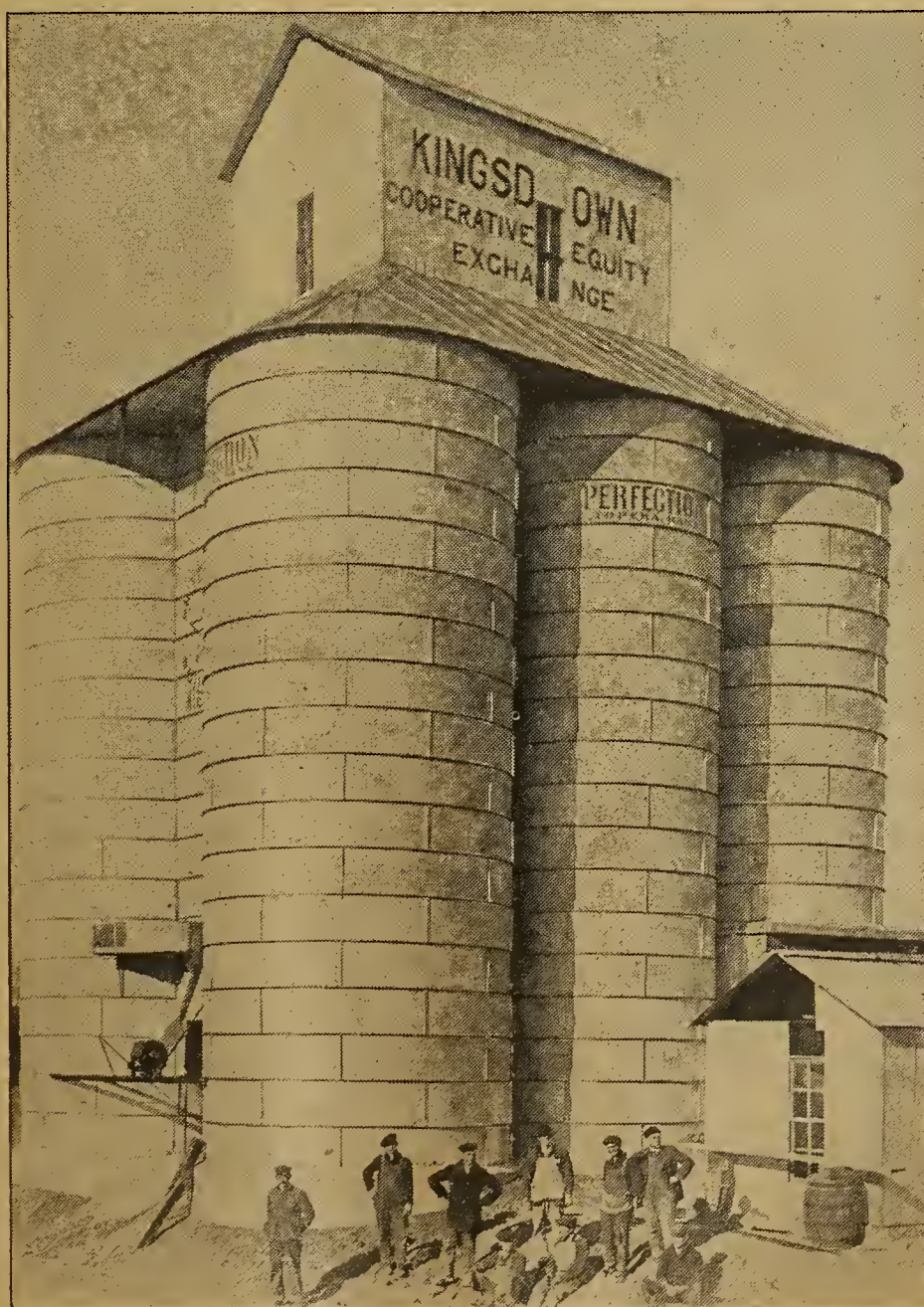
About seven years ago, at Caldwell, Idaho, two local auctioneers began the practice of having what they called a "Monthly Traders' Day Sale." The sale was held on a vacant lot the first Monday of each month. Its object was to give opportunity for people who had one or a number of articles or animals for sale to come in contact with buyers.

Traders' Day Sale rapidly established a reputation valuable alike to buyers and sellers. If its value to the community can be determined by the patronage which people of all classes give to it it qualifies as a most valuable community asset. Once it was established, the sale rapidly assumed such proportions as to make it impossible to sell all of the offerings in one day. Then the third Monday was set apart for what is called the midmonth sale. This sale is designed primarily for a stock sale.

A long-term lease was then secured on a vacant square, and sheds erected for tying and feeding animals, and yards enclosed with substantial board fences for the accommodation of those who have loose stock. A small building already on the ground was converted into an office for the clerk and helpers. Up to noon of the day of sale the time is devoted to receiving and listing and tagging the offerings. The offerings comprise the unusual as well as the usual miscellaneous articles of everyday home and trade use.

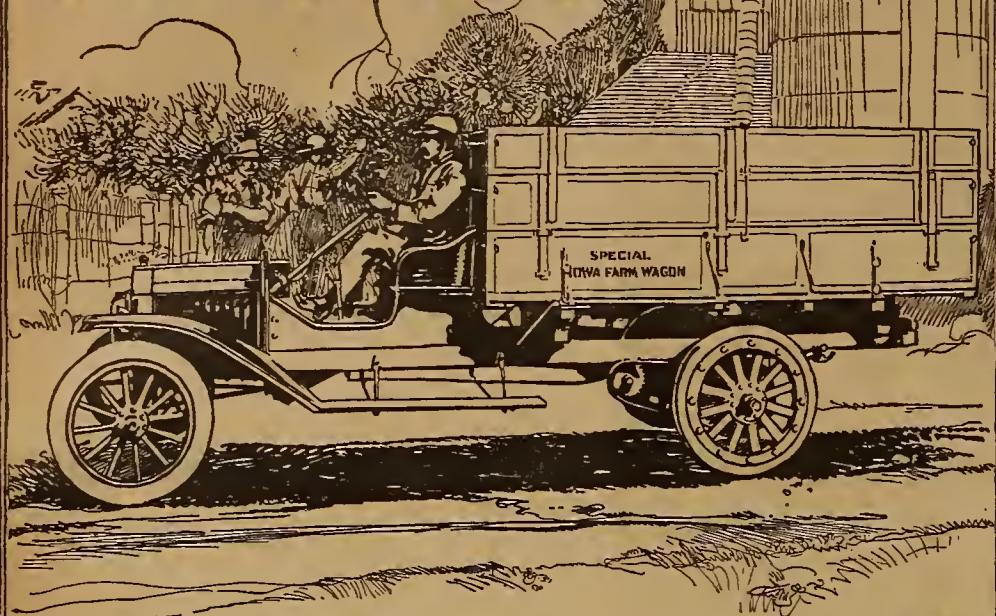
Getting so many people together as it does, the spending people of the crowd are easy prey for the people who are working the special attractions. The "movies" vie with each other for their share of the loose money. The eating houses advertise their specials in order to hold at least a part of the crowd from gladdening the hearts of the Ladies' Aid chicken-dinner people. The Boy Scouts improvise a booth from which to sell ice cream and soda pop. And seldom a store in the whole town but what has its windows well set out with tempting bargains of so-called "Traders' Day Specials."

The fact that auctioneers, and even enterprising individuals who must employ auctioneers, in surrounding towns and communities are adopting the idea with most satisfactory results proves its practicability to the average community.



This is one of many similar farmers' elevators in the Middle West. It has all modern equipment, is fire-proof, and has a capacity of 30,000 bushels

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Dear Sirs: I own a Smith Form-a-Truck which I fitted on to a 1913 Ford Chassis. I have used it in my farm work every day for several months and have carried an average load of from one and a half to two tons.

**14 to 16 miles per gallon
of gasoline under full load.**

I have covered over 700 miles and have steadily averaged from 14 to 16 miles per gallon of gasoline. This gasoline mileage is an important factor with me now when fuel is so high.

This Smith Form-a-Truck has been loaded down as heavily as 3800 pounds and one day, in carrying this load of fertilizer, I drove it over a 15% grade 30 ft. long and did not have to change from my high speed.

I strongly recommend the Smith Form-a-Truck for any one who is in need of a light truck.

Yours truly, H. LANGGUTH, Bensenville, Ill.

Cheaper than Horses on Your Farm

The Smith Form-a-Truck removes the last obstacle that has stood in the way of your doing all of your farm work by machinery.

At the low cost of \$350 and a Ford, it puts a motor truck into your service that will save you money and time in all work you are now doing by teams.

Here is your opportunity to cut your present teaming cost in half by using our rear end truck attachment which forms, in combination with any Ford car a fully guaranteed one ton truck.

Four miles to every one that you can cover with horses is what the Smith Form-a-Truck will do for you. And it will haul a much bigger load than your best team can haul, and do its work at a far lower cost.

It's a time saver, making your trips for you in one-fourth the time it takes you if you are using teams.

The Smith Form-a-Truck will go anywhere you can drive a team and many places you cannot drive with horses.

It's the most practical form of hauling for work on your farm.

Smith Form-a-Truck

For hauling loads to and from town, the Smith Form-a-Truck will make trips in three or four hours, that you now take all day to make. You can convert the time you are now wasting on the road into real useful time that is earning you money.

The Smith Form-a-Truck rear end attachment makes, with any Ford car, a chain drive, one ton truck with 125-inch wheelbase and a loading space back of the driver's seat of 108 inches.

Any desired type of body can be obtained at a slight additional cost.

Cost of operation is lower than that of any other truck of equal capacity: gasoline mileage averages from twelve to twenty miles per gallon: tires last from six to eight thousand miles per set: an average speed of from twelve to fifteen miles per hour can be maintained over all roads.

And you get the wonderful mechanical ability, sturdiness and endurance of the Ford power plant.

Repair cost can almost be forgotten. In all kinds of service the Smith Form-a-Truck is proving an operating cost of less than four cents a mile, carrying full load.

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Frills in Dairying

Health Officers Arbitrary in Demands

By JUDSON C. WELLIVER



WASHINGTON, D. C.,
May 8, 1916.

DOES a milch cow need to be kept in a parlor, massaged and manicured like a princess getting ready for a dress ball, in order to produce the sort of milk that folks can safely drink?

Apropos of this question of dairy regulation, that question is to be asked and, the dairymen say, to be answered at the conference of dairy interests in Washington this month. The Federal Government has been conducting some extensive experiments to determine just what are the factors that really enter into the quality of the milk. I am informed, thus far unofficially, that these have resulted in some distinct shocks for the people who have been insisting on rigid dairy sanitation.

At Beltsville, Maryland, the Government has been carrying on these dairy experiments. There is a large establishment in which it has been possible to apply various schemes of control inspection, supervision, and the like. Milk produced under varying conditions has been subjected to all the tests; and the results, I am assured, indicate that there is a tremendous lot of nonsense about many of the requirements and regulations that make the primary cost of milk so high.

To begin with, there probably isn't a city or state dairy inspection service in the country that would permit milch cows to be kept all winter in a barn from which the manure had not been removed. That would condemn the whole establishment from the start. One glance at a dairy barn kept in this fashion would be sufficient.

The people in charge of the government experiment at Beltsville decided that they would get right down to facts at the beginning. They tore out all the stanchions; there were no stalls, the cows were permitted to lie down where they pleased.

Not a forkful of manure was moved out of the barn during one period of about three months. Instead, plenty of straw was used every day for bedding, and the heap of manure was spread evenly over the floor. That was about the only care provided.

The manure was taken out only when the accumulation was so great that it was necessary in order to keep on doing business.

This sounds like the description of a peculiarly reckless method of management. Yet, in fact, the thing was done as scientifically and carefully as possible.

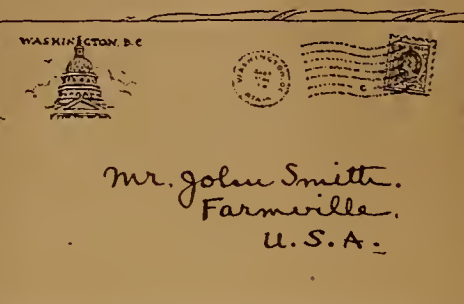
The result seemed decidedly to demonstrate that there is a good deal of folderol about some of the sanitary regulations. Cows that were kept in this barn which was never cleaned were found to keep themselves cleaner, without being regularly curried and rubbed down, than those that were kept in stanchions and were compelled to lie down in the same place all the time. It was discovered that a cow, given the chance, preferred to lie down in a clean place rather than a dirty one. An almost unbelievable amount of time and effort was saved in this detail of keeping the cows clean. When they were given the chance, they took care of themselves in respect of personal cleanliness.

Get About Same Results

Under the conditions just described the herd was kept for a long time, and the most detailed rating was made to show the quality of the milk for bacteria, for butterfat content, and for quantity. Then the stable was cleaned out, and all the high-brow regulations about constant cleaning, currying of the cows, and the like, were enforced for a like period. The same detailed record of results was kept under both sets of conditions.

At the time I am writing, the official results of this experiment have not been published. I am assured, however, that when they are made public somebody is going to experience a real joke.

It was found that if narrow-mouth milk pails and plenty of straining apparatus were used in milking, so as to prevent dust from getting into the milk, there was no difference in the quality of the milk under the two sets of conditions.



The fact that a cow had not been manicured morning and evening, that there had been omission to comb out her tail, or even that there had been

some accumulation of manure on her flanks, seemed to have absolutely nothing to do with the quality of the milk. So long as she was milked with proper care and permitted to be reasonably happy in her environment, the same sort of milk came out of her udder and went to the consumer. The bacterial count did not vary enough under two sets of conditions to be worth mentioning.

But whenever, in either set of conditions, the precaution about milking with the utmost care to keep dirt out of the milk were relaxed, then the bacterial count instantly showed striking results.

No One Willing to Advise

This Beltsville experiment has included also inquiries into the results which follow relaxation from other conditions which are always imposed by the inspectors, such as specifications about the space allotted to each cow in the barn, the square-foot area of windows in proportion to the number of cows, and the method of ventilation.

In these matters, as in that of cleaning the barn, it seems to be pretty definitely shown that the most expensive regulations produce the least result, and that many of them are sheer nonsense.

One of the incidental results of the experiments in keeping cows all winter without taking the manure from the barn was a very much better quality of manure. When it was finally taken out it was thoroughly rotted and seasoned. The ammonia and other gases which develop in the process of seasoning manure, simply have no chance to develop when the manure is removed every day.

Nowadays, when it is coming to be fully realized that one of the most important and valuable by-products of the dairy industry is the manure it produces, this consideration is not lightly to be passed over.

Among the practical farmers who are in the government service in Washington are a great number who have farms of their own in the neighborhood of the Capital, and who do much practical work at home.

One of these men being interested in dairy management built his dairy barn and milk house in strict accordance with the plans which were prepared by the Department and approved by the health officers in Washington.

But before he made the investment he tried to get the assurance from the Washington authorities that if he did this he would be given full credit for it. At this point he met a flat refusal. The health authorities would give him no assurance whatever. The inspectors said everything would depend on results, and that they were not providing people with specifications for their plants, but merely judging the results obtained.

Another case has been brought to my attention in which a dairyman had a dairy barn, and also a dairy house, built according to the best approved plans. He became convinced that it was better to milk the cows in a separate room from that in which they were kept, and decided to build a separate milking shed between the barn and the dairy house.

Before doing this, however, he asked the inspection officers if they would approve this plan. They calmly declined to say whether they would approve it or not; the most they would promise was that after he had built a milking-room they would examine the place and either approve or condemn it according to their impressions at that time!

Such instances as these might be multiplied indefinitely out of the experiences of dairymen. They seem to prove pretty conclusively that the officials have no real confidence in their own standards, and do not know enough about the actual practical details of producing milk to enable them to commit themselves to either side of specific proposals. If the dairyman who wants to comply with every reasonable regulation cannot get information as to what the regulations are going to be, how on earth is he to construct a plant that will produce the best results?



He had 30 head of beef cattle he wished to sell. Because the market was low, he felt that selling them would be giving them away. In fifteen weeks he had slaughtered and sold all of these cattle, and he had received double the money he would have received if he had sold them on the hoof

Beating a Low Market

Where a Farmer Turns Packer and Sells Steaks and Chops

By HARRY M. ZIEGLER

BUYING heifers and hogs, slaughtering them, and selling the beef, pork, and lard to the neighbors and persons living in three near-by towns made a lot of money for one corn-belt farmer.

A heifer which cost from \$15 to \$25 was sold as steaks, roasts, and boiling meat for \$35 to \$60. With a hog the profit was the hams, the two best pieces of bacon, and the lard. The rest of the hog paid the purchase price. These unusual profits were made during the first years the business was conducted.

During the thirty years he was in the meat business he never used 100 pounds of ice to keep meat fresh. And a pound of meat in his possession never spoiled.

This is the experience of John Laury, an Allen County, Kansas, farmer. Mr. Laury, his wife, and two of their eight children, who are living at home, have moved to the county seat and are enjoying the fruits of labor well done. Four of the children have been graduated from college. Two are attending college, and the two at home are attending high school. The eldest son is running the farm.

"It was in President Cleveland's first administration, in the fall of 1885, that I started in the meat business," Mr. Laury said when he related his experience to me during a call I made at his home. "I had 30 head of cattle I wished to sell. The market was so low I felt that selling them would be giving them away."

"I pondered about the problem several days before I determined what I would do. If my neighbors and many of my friends in the near-by towns would buy meat from me I decided I would slaughter my cattle instead of selling them on the hoof. All of my neighbors and many of my town friends agreed to buy meat from me. This was just the encouragement I needed."

Slaughters and Sells Beef

HAVING slaughtered many cattle and hogs when he was a boy on his father's farm, Mr. Laury didn't have any difficulty in killing and dressing one of his best beeves. The interior of a large dry-goods box was fitted up with hooks on which to hang meat, a small door was hung in the front of the box, and the whole was placed in a spring wagon, and covered with a sheet.

A grass-fat heifer was killed and dressed late Friday afternoon. The next morning Mr. Laury arose early and cut up the carcass into steaks, roasts, and boiling pieces. By the time he was ready to start, all of the animal heat had left the meat.

As fresh meat was not a common article for the neighbors of Mr. Laury, they bought liberally. Then he went to the town. Farm-butchered beef attracted the townspeople, and by two o'clock that afternoon he had sold out, soup bones and all.

"I don't remember just how much money I did make on that first carcass," Mr. Laury said, "but the beef dressed about 400 pounds—half of its live weight. And I sold the boiling pieces for 4 to 6 cents a pound, the roasts from 7 to 9 cents, and the steaks 10 cents a pound or three pounds for 25 cents."

Another beef was slaughtered and sold the next week. This time there were so many customers unserved when the last pound of the beef had been sold that Mr. Laury slaughtered two beeves the third week. An increased demand took three beeves a week, three months after the little business was started. Now a trip was made to town every other day, and one trip a week to the neighbors. A slaughter house had been built.

In fifteen weeks Mr. Laury had slaughtered and sold all of his beef cattle, and was buying heifers from his neighbors. He had two times as much money as he

would have received for the cattle if he had sold them on the hoof, and he had laid the foundation for a very profitable business. Mr. Laury always slaughtered heifers because they cost much less than steers. The prices are more equal now. In fact, well-finished, corn-fat, spayed heifers sell for as much as steers.

The three towns near the Laury farm began to grow rapidly. Mr. Laury sold most of the meat at the nearest town, which was five miles distant. Then the demand for beef took five beeves a week, and still later one a day. This required a trip to town every day.

Three or four years after Mr. Laury started to slaughter and sell cattle, to meet a demand for fresh pork, he slaughtered a few hogs. Many persons wished to get home-cured hams and bacon, and good country lard. This extra business, added to his beef trade, resulted in a larger and more modern slaughter and packing house being built to take care of it.

Beginning in October and ending in January, from 200 to 300 hogs were slaughtered in addition to the regular number for fresh pork. These hogs would produce from 15 to 22 tons of lard, bacon, and hams. This amount of pork products would supply the trade until late in the summer. Mr. Laury never failed to sell out all the cured meats and the lard.

"In 1905 when two of the boys and one of the girls were ready for college," continued Mr. Laury, "I didn't know whether to have them wait two or three years while we made our fortune, or have them go to school. The children had grown up in the business. The boys helped me with the butchering and delivering. The girls helped their mother with rendering the lard and curing the beef and pork. Of course, we hired help to do the real heavy work, both in our home and in the slaughter house."

"All of the near-by towns were growing rapidly, and our meat business was keeping pace with the increased population. But the children went to college. I

couldn't get anyone to help with the delivering that had the necessary acquaintance with the farmers and the townspeople. Hence I had to do all of the selling myself, except during the summer months, when the boys were home from college. Delivering six days a week was extremely hard work for one person."

In the early days of the business, lard was sold for 8 to 10 cents a pound. Most of the pork cuts were sold for 10 cents a pound. Later lard brought 15 cents a pound. Dried beef was sold for 20 cents a pound.

The meat was always peddled from a spring wagon. The meat cage after the first two or three years was a strong wooden frame 3 feet wide, 3½ feet high, and 6 feet long. It was covered with heavy muslin. The equipment included a large spring scales, meat saws, knives, and a large steel for sharpening the knives. Wrapping paper was not needed, as the customers always brought a plate or dish on which to carry their purchases.

Chickens and mutton were handled only on special orders. Mr. Laury never butchered a sheep but he sold the mutton the neighbors butchered. While many chickens were sold, they were handled more as an accommodation to the customer. There wasn't much demand for mutton in those days, or Mr. Laury would have butchered sheep.

"How did I keep me fresh without using ice?" said Mr. Laury, repeating my question. "That was very simple. In the summer months we would kill the cattle and hogs just before dusk. The carcasses would be split down the middle after all of the 'insides' had been removed. Then the carcasses would be hung up in the packing house to cool. Early the next morning, before the sun was up, we would cut up the meat. The different cuts were hung up until all of the work was finished and we were ready to start to deliver. Then the meat, free of all animal heat, was loaded into the meat cage. The meat handled this way would keep fresh without ice for forty-eight hours in the hottest kind of weather, while if we had used ice the meat would only have kept for twenty-four hours after it was taken off the ice."

Mutton was handled only on special orders. He sold the mutton his neighbors butchered

Increases Fertility of the Farm

ONE hundred and sixty acres of ordinary eastern Kansas prairie composed the Laury farm when the meat venture was started. When Mr. Laury retired from the farm and turned it over to his sons four years ago, the place had grown to 240 acres of very fertile land. The farm buildings were large and in good repair.

While the profits had decreased a great deal from those of the last fifteen years, there was still a good living, and an income too, when the eldest son, who was managing the farm, recently closed out the meat business. He wished to raise pure-bred cattle and pure-bred hogs. He can be home with his wife and two children, instead of riding around in town on the meat wagon all day. Now he feels his time is more his own.

"While the towns contributed much to my success, the same kind of a meat business could be run on a smaller plan by many farmers who live near towns of 1,000 persons and up," Mr. Laury concluded, "and they can make a lot of money."

Now that the Laury meat wagon doesn't stop at their front gates, the farmers in the community are members of beef rings, and are butchering their own hogs.

The city people have returned to the city meat markets. They still have a desire for country-cured hams and bacon and farm-butchered steaks and roasts, but there is no one to supply them.

EDITOR'S NOTE: Since this article was written, a letter from Charles Laury, one of the sons attending medical college in Chicago, informs the editors that Mr. Laury died of heart disease, and that Mrs. Laury and the two children at home have moved back to the farm.



Between October and January, from 200 to 300 hogs were slaughtered and packed. That many hogs would produce from 15 to 22 tons of lard, bacon, and ham

FARM and FIRESIDE

THE NATIONAL FARM PAPER

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May 20, 1916

Better Farm Lights

WE ARE entering an age of better lighting for farm premises and buildings. Heretofore electricity and gas have been economical for power and domestic use only when manufactured in large quantities. For the past ten years the change has been coming. The gas engine started it. Then the automobile came along and proved that the average intelligent man or woman could safely handle power machinery. Next followed improvements in storage batteries and electric bulbs which increased efficiency and reduced cost. Electricity can still be manufactured most economically in large quantities, but the cost of wires, meters, and general upkeep—the things necessary for distributing current in cities—makes the average city dweller pay more for his electricity than does the family that has its own farm plant.

Mantle lights, heated by either kerosene or gasoline vapor, have followed along till now for the price of a good old-fashioned kerosene lamp you can get a light of ten times its brilliancy at lower cost of operation.

With the different forms of improved lighting available, pleasant, sociable evenings, better light for reading and study, and an added measure of safety are all at hand. The "bright lights" of the country are just coming over the horizon of history. The dark age of farming is past.

A Contest for Water Power

WE, THE PEOPLE, in the past have had but a meager idea of the extent of our nation's unharnessed water power. Take mental measurement of all the mechanical power now in use throughout this country, multiply it by two, and the result is approximately the power possibilities that can be developed from our rivers and other water courses. This means that our population can double and number two hundred million souls and still there will be sufficient power, reckoned on our present mechanical basis, to keep every wheel turning and all machinery moving. Naturally this invaluable national resource is the most coveted prize now being striven for by great aggregations of capital. Managers of the great power-absorbing interests have been on a still hunt to land this colossal prize for years. Each time their plans have been thwarted other plans have been more deeply and cunningly laid with which to gain the right to monopolize this resource which should always remain a heritage of all the people.

The present Congress is the arena for perhaps the greatest contest for water-power purchases of any yet waged. The Shields bill, which was forced through the Senate, makes a perpetual grant of public water power. A substitute for that bill, which has been introduced into the House, limits the rights of water-power monopoly to fifty years, but makes no compensation to the public.

It is time that a just water-power development measure should be enacted for the encouragement of the people's industry. But the practice of the water-power monopoly is to prevent all water-power

legislation until they can secure that which is favorable to their selfish interests. This power monopoly has already killed eight water-power development bills that were fair to both the corporations and the public.

Now is the time for every voter to make his influence felt in Congress in the support of a fair water-power development law.

Modern Home Comforts

THESE days city real-estate men are a busy lot opening up outlying residence additions. Even in cities of forty to fifty thousand population there is a pronounced and growing interest in getting homes outside of the closely built-up areas. Home plots of one to five acres are also much more in demand than formerly. The city man can hardly expect to possess even a modest suburban home equipped with modern improvements for an expenditure of less than three to five thousand dollars. Many of these city homes are no whit better than countless farm homes, except for being

A Gasoline Hope

THE future of our oil supply is not so dark as may be imagined. According to estimates of the U. S. Geological Survey there is sufficient shale in Colorado alone to yield twenty million barrels of crude oil, from which at least two million barrels of gasoline can be extracted. This shale is a bituminous rock which when heated yields an oil made up of about 10 per cent gasoline, 35 per cent kerosene, and a large amount of paraffin. The Survey announces that the shale beds of Colorado are three feet or more thick, and more shale of similar nature exists in northeastern Utah and southwestern Wyoming.

Scotland has a well developed shale-oil industry giving employment to 8,000 men, this industry being fifty years old. Yet Scottish shale is much lower in oil than that found in the mountain state deposits of this country. The U. S. Department of Commerce predicts that sooner or later this great source of supply will be utilized to supplement the decreasing production of the oil fields.

Winfield, Pa.,

April 24, 1916.

Farm and Fireside,
Springfield, Ohio.

Gentlemen:-

Several days ago I received a catalog from the Henry Field Seed Co., and this morning another from the Callahan Duo-glazed Sash Co. Both of these firms stated that Farm and Fireside asked them to send me their catalog.

I really didn't expect you to go to so much trouble for my sake. You have been very courteous, and my wife and I wish to show how grateful we are by saying that we shall always keep our name on your subscription list.

Wishing Farm and Fireside the most of success, we beg to remain,

Very gratefully yours,

Arthur S. Bilger

equipped with running water, electric light, and sewage system. The city resident has become accustomed to these conveniences, and even though far less financially able to meet the additional expense than many farmers, he puts improvements in and assumes the debt.

Not only would the women of the farm home be great gainers by the change, but the farm men-folk would also quickly become appreciative of the new comforts after a short experience in pushing buttons and turning levers and switches for light, water, and other conveniences.

Can anyone explain who better deserves these labor savers than the farm workers who feed the world?

Florida in Twine Belt

WILL Florida successfully compete with Mexico for the twine business? A hitherto worthless encumberer of thousands of Florida acres, the scrub palmetto, is coming into prominence as a competitor of the sisal plant of Mexico which is now the main source of our binder-twine supply.

A company has entered this field and declares to have produced a palmetto twine which withstands a greater strain than similar twine made from sisal. The new twine is a product of the leaves of the scrub palmetto, which are removed without killing the plant.

Our Letter Box

A Live Farm Club

DEAR EDITOR: I was interested in the sentiments of Miss Jennie Beech in the Editor's Letter of April 8, 1916. I think we as a community were in about the situation that hers was—a neighborhood of farmers fairly intelligent but lacking social development and culture. We are located five miles from a thriving town of 6,000 inhabitants—most too far to get the benefit of town social activities very often. Finally a club was proposed, and on the seventh of November, 1903, we organized what we named "The Winter Study Club," to meet once every two weeks at each of the members' homes. Thirty-three were present as charter members. We have now about fifty. More would join, but fifty seems to be about the limit of our housewives' accommodations.

The object of our club was to have instructive and social evenings, and, "believe me," it is a bad night when we don't fill the house. Thirteen years ago, when we started this club, it was a task to select a president. All felt incompetent and embarrassed. Now all is changed. I remember that my first paper gave me the sweat of my life.

About four members take part at each meeting. For example, the Panama Canal was one subject taken up. One member carried it along till De Lesseps made his failure. Another discussed it after the United States took over the enterprise, how the wonderful Goethals overcame all obstacles, including malaria and worse

diseases, and completed the biggest work of the world. We even had one of our members go there on the ground for a visit for a time during the construction of the canal. He gave us a whole evening describing what he saw.

Every home is expected to entertain the club once during the winter, and furnish light refreshments, after which comes sociability and fun for young and old. At the end of the winter meetings we have a banquet, with a toastmaster, and a general good time.

Our club holds an annual outing or picnic. For these annual outings we have been to Niagara Falls, Crystal Beach, Ontario Beach, Niagara-on-the-Lake, Sea Breeze, etc. We may go to Yellowstone Park this year.

When we first organized it was a hard stunt for most of the members to read a paper or extemporize, but practice has given us confidence and has resulted in much mental development and ease and dignity of expression.

P. A. DAVIS, New York.

About Sweet Clover

DEAR EDITOR: I have never sown much sweet clover seed, but have had volunteer patches on the place for a number of years. My experience is that sweet clover makes better pasture or soiling crop than it would if cut and cured for hay. I find it difficult to cure for hay. The first cutting should be made before it blooms for hay or soiling crop. If left standing until it blooms, the stems become too hard and woody. By cutting sweet clover early, the second crop stools wonderfully has a finer stem, and makes better quality hay than the first cutting. Where sweet clover grows, alfalfa will grow, which I find to be the king of all forage crops.

M. D. BOWLES, Oregon.

Blasts the Poplars

DEAR EDITOR: The plan of killing poplar trees that has given best results in my experience is blasting. Poplar trees in habit of root growth are branchy as a rule, and are to some extent herbaceous. By punching a hole under the center of the tree and placing from one half to a whole stick of dynamite, its force when exploded will be exerted against the bottom of the stump where the roots join the trunk of the tree. The force of the explosion destroys the sap channels beneath the bark. This operation should be done while the trees are standing, at any season. The trees soon die, and the roots, being comparatively small, will rot quickly, and the wind will uproot the trees within a year, as a rule, when the charges of dynamite are properly placed and of sufficient strength.

R. F. VANN, South Carolina.

Cheap Pork

DEAR EDITOR: One of your readers recently protested that an article entitled "Three-Cent Pork" was misleading. If it leads in any direction except the growing of hogs with plenty of forage crops, it is. But as a matter of fact, three-cent pork is not a low-cost record by any means.

At the Arkansas Station, in a test in which the cost was more carefully computed than can commonly be done on the farm, pork was produced at a cost of a cent and a half a pound. The forage crops used were red clover, sorghum, Spanish peanuts, and six and three-fifths bushels of corn per pig grown on poor soil which would grow only about 25 bushels to the acre.

There are oceans of country in the United States where these crops can be grown, and north of the peanut line there are other legumes to take their place.

When the hog helps himself he chooses the right ration if it is within reach; he gets the exercise to keep him thrifty; he saves the labor of harvesting everything he eats and carrying it to him; and he hauls his own manure.

All these things make for cheap pork.
WOOD TEBBE, Arkansas.

Bits of Good Humor

Doubtful, 'Tis True

"Do you think that women ought to govern?"

"Oh, yes," replied Miss Cayenne. "But I don't know whether it would always be wise to call public attention to the fact that they are doing so."

Peace Talks, Too!

"Here, here, gents!" admonished the landlord of the Center Hill tavern, addressing the prominent citizens assembled around the stove. "You'll have to cut that out! I don't mind a little war talk occasionally, but I draw the line at peace discussions—they break up the furniture so."

Good Health Talks

By DR. DAVID E. SPAHR



MR. J. E. R., an old cattleman and ranchman of Indiana, says when he herded cattle in the West he found a sovereign remedy for rattlesnake bites in animals. It consisted of turpentine, coal oil, and lard, rubbed into a fresh bite. Will cure it in three days. That is, in a beast, not man.

Backache

Can you give me a remedy for lumbago? I am so lame I can hardly walk at times, and have been for a number of years. Mrs. G. W., Wisconsin.

STRONTIUM SALICYLATE in five-grain doses every two hours will relieve most cases of lumbago in time.

Prematurely Gray

Although I am only twenty-eight years of age, my hair is turning gray rapidly. I should like to have a remedy, or at least a suggestion. Mrs. C. C. C., Minnesota.

GRAYNESS of the hair is due to absence or diminution of pigment, the presence of bulke between the hair fibrillae, or both causes. You might use the following hair wash: Pot. Carbon, Amon. Carbon, of each 1/2 dram; glycerin, 4 drams; Aqua, Spir. Vini, of each 8 ounces; oil lavender, 6 drops. Mix.

Pyorrhea

Will you please tell me what to do for pyorrhea? I would like some remedy that I can use at home and treat my teeth, as it is not convenient for me to go to a dentist all the time. Mrs. W. W., New York.

EMETINE hydrochloride is now the leading remedy for treating pyorrhea, but it requires the services of a physician to administer it. Probably the best thing for you to use at home would be Borothymine, made by The Abbott Alkaloidal Company, Chicago, Illinois, and use it according to directions.

Iron Tonic

Our little girl, seven years old, is weak and pale and her flesh is flabby, and she is often sallow. We are thinking of giving her solution of peptonate of iron with manganese. Is it too strong for her weak stomach? J. D. E., Maryland.

IN THE proper dose for a child of that age it would no doubt be beneficial.

Neuralgia

If a person is kept awake at night by a neuralgia pain, and feels obliged to take an anæsthetic, what in your opinion would be the safest and the least harmful? Mrs. J. R., Massachusetts.

I DO not know of any anæsthetic that would be safe for anyone to administer to himself. Ether is probably the safest, but it is so inflammable and explosive that it could not be used. Perhaps you meant an anodyne. Anodynes, under the law, can now be administered under the direction of a physician only.

Boils and Prickly Heat

We moved to North Dakota from Minnesota last fall, and in a few months my husband and I broke out with boils. After we got well from the boils, we broke out with an itch, but no rash on the skin. Mrs. L. P., North Dakota.

YOUR trouble is all caused by changing climate and drinking water. It was a kind of infection. You will soon be all right again, I think.

Sciatica Rheumatism

I have suffered dreadfully with rheumatism for five years in my right leg from my hip down. Now I can scarcely walk. A. W. B., Kansas.

YOU certainly have a bad case of sciatica rheumatism. I would advise you to take one teaspoonful of syrup of trifolium compound three times daily.

Uses Sassafras Tea

MRS. W. of Missouri writes us recommending red sassafras tea for "hot flashes." She says she was cured by drinking plenty of it. It is certainly harmless and might be quite beneficial.

E.W



Consistency

WHEN you invest several hundred dollars in a motor car, you should feel assured on one important point. And that is whether or not you can expect consistency in performance.

Any car can run a hundred miles or so without trouble. Any car can go that far without readjustment of its mechanism. Almost any car can go short distances under favorable conditions and make a satisfactory showing on gasoline and oil consumption.

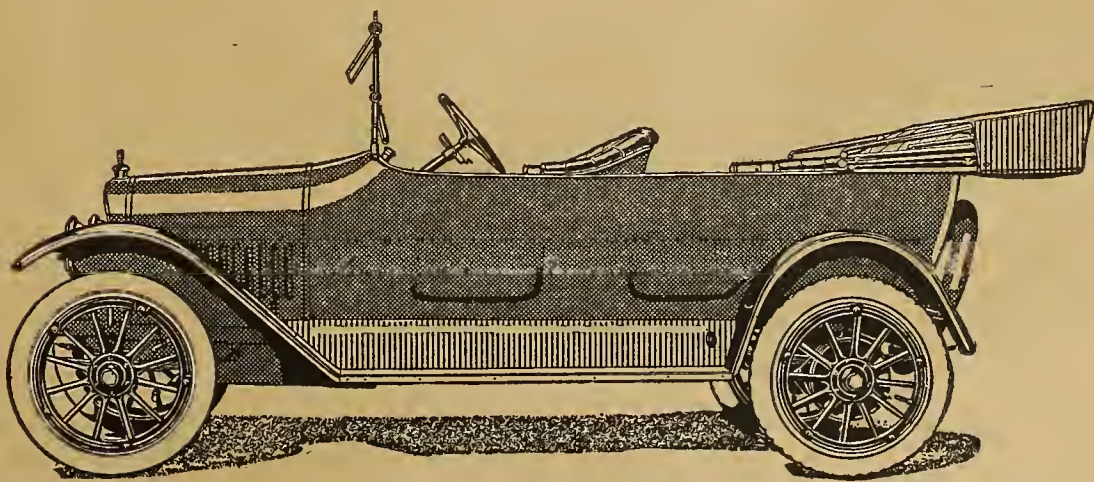
But you want to know that your car can be relied upon day in and day out. You want high mileage per gallon of gasoline and per set of tires. You want freedom from repairs; and you want all of these things, not occasionally, but continuously—day after day; season after season.

While there may be other cars of higher price that will serve you faithfully and consistently, you know that the Maxwell will. You have the proof—the verified facts and figures. And these facts are worth more to you than any one's claims or promises.

When the Maxwell became the World's Champion Endurance Car by traveling continuously for 44 days and nights (covering 22,023 miles) it averaged almost 22 miles to every gallon of gasoline. It went the whole distance without repairs of any kind and the tires showed a record of more than 9,000 miles each.

This great distance is probably farther than you would drive in two or three years. And it is a guide to what you could expect from the Maxwell in the way of economical and consistent service.

The World's Champion Endurance Car



Touring Car, completely equipped, including Electric Starter and Lights, \$655, f. o. b. Detroit. Four other body styles

Maxwell

MOTOR COMPANY, DETROIT, MICHIGAN

Write to Dept. 8 for our catalog giving detailed specifications and our booklet "22,000 Miles Without Stopping."

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Your subscription to Farm and Fireside entitles you to the services of the Editorial and Business Departments of the paper free. We spend a lot of time and money to collect information on the things that affect you and your business. We give you the benefit of this information. Feel free to write to us if you need information or desire advice.

Address the Editorial Department for any information you may desire on any or all of these subjects: Live Stock, Dairy Methods, Poultry-Raising, Crops and Soils, Seeds and Nursery Stock, Market Packages, Automobiles, Garden and Orchard, Farm Machinery, Household Equipment, Insect Pests, Handy Devices, Recipes, Good Books, and Health.

Address the Circulation Department if you wish to know about Premiums, Agencies, Subscriptions, or Clubbing Offers. Address the Pattern Department if you have questions concerning Patterns and Fashions. Address the Business Manager if you desire information about Advertising Rates or Reliability of Business Concerns.

If you are in doubt about which department to write, address the Editorial Department and your inquiry will be cared for properly.

If there is something in Farm and Fireside you like or don't like, let us hear about it. Don't wait until you have a question to ask.

Farm and Fireside
Springfield, Ohio



Asparagus-Growing Kinks

By M. G. Kains

MUCH of the success of asparagus any year depends on the behavior of the crop the previous year. Barton Brothers of New Jersey, whose operations are unusually successful, have about thirty acres in this crop. Those growers emphasize the following points:

When the cutting has not been continued late one year, and the season has been favorable to growth of tops, and when there have been no severe droughts, the crop is earlier the following year than when reverse conditions have prevailed. Their practice is to cut from the opening of the season until the third week in June at latest. They shorten up when the market rules low and cutting becomes unprofitable. But they find that it is not wise to stop cutting much before the second week in June, because there is too much of a chance for rust spores carried over winter to spread the disease. By the third week the spores will have germinated and died for lack of asparagus stalks to live upon.

Another point is that the tops produce less seed when they start late—a strength-saving process since seed production requires more food and energy than does stalk-growing.

The demand for green "grass" is far greater than for the white or blanched asparagus. To grow this the crowns are planted only two furrows deep and ridged slightly. For white stalks the planting is deeper and the ridging extensive.

For areas as large as half an acre or larger, it pays, in Barton Brothers' estimation, to grow crowns from seed rather than to buy them, because thorough cultivation may be given and the cost can be reduced to a minimum. Then, too, the inferior ones may be discarded and only the choicest transplanted.

The distances favored are six feet between rows and twenty inches between plants. Manure is not used by Barton Brothers, but the plants are given an application, soon after setting, of a high-grade general commercial fertilizer. In three or four weeks a top-dressing of 150 pounds of nitrate of soda is given, and in July a mixture of nitrate and tankage—about 100 pounds each per acre. These applications, especially the latter, help produce inter crops of annual truck between the asparagus rows. Producing beds get the same care and an additional dressing of nitrate and tankage.

Spring care consists of disk harrowing and slight ridging over the rows. At the close of the cutting season the land is again disked, smooth-harrowed two ways, and the cultivator used thereafter till the tops interfere with the work.

Enjoying Tree Seats

By P. W. Humphreys

A TREE SEAT in the back yard near the kitchen door will make life more pleasant for the housewife. Such a seat will permit her to work out in the fresh air more. Fresh air, laden with the per-



A tree seat can be built at small expense of money and labor

fume of flowers and fruit, will benefit tired bodies more than tonics. A tree seat in the yard takes the drudgery out of many lives. The wife can shell peas, pare apples, hull berries, peel potatoes,

or perform many other tasks while resting in a tree seat.

Tree seats in many forms appeal especially to the handy man or handy boy because they may be constructed quickly and at little expense. No side supports are required for holding the roof in place, as for summer houses and other garden shelters in the open air. An ideal roof is already provided for the tree seat by the wide-spreading branches.

The plain, durable, inexpensive tree seat that is built around the trunk of the tree, at the proper height from the ground for comfortable sitting, is within the building capacity of young boys. Older boys and their fathers will like to attempt the more elaborate seats built up in the branches.

Attractive backs for the low slab seats are the thick, rope-like vines and wide-reaching branches of the wild grape found in many farm lots. These are tough and strong, and when woven and



Shrubbery planted near the tree seat provides shelter and screen

twisted about the tree trunk, where two or more form the back of the seat, a pleasing design is quickly arranged that will withstand much rough use.

To Kill Cutworms

THE time to get the scalp of the cutworm is before the crop shows above ground. This ever-hungry devastator is then keen for food, and will make a fatal meal of bran mash (an ounce of Paris green mixed with two or three pounds of wheat bran moistened with diluted molasses). Pinches of this mash placed under shingles or flat stones will put the cutworms out of business.

Some Gossip

SOME persons plant their trees about the same as they do their fence posts, and the trees grow about as well as the posts.

Did you make systematic war on fruit diseases and fruit insect pests? Try leaving a tree, or plan to increase your faith in the protective treatments.

LEARN to know our lady-bug friends and give them a chance to multiply as much as possible. There are a number of varieties of lady-bugs, and all of them make war on other harmful bugs, particularly plant lice of various kinds.

TREATING seed potatoes with a disinfecting solution to prevent scab and other fungous diseases is but little trouble, and the expense is small. An hour's time and a half dollar expended for the purpose will often add \$25 to \$50 to the value of the crop from an acre of potatoes.

FIVE persons were recently made absolutely helpless by eating what were supposed to be mushrooms from an artificial mushroom bed. Occasionally there are poisonous fungi resembling mushrooms which develop from the manure used in making mushroom beds. Watch out! Vigilance is the price of safety where mushrooms are concerned.

GROWERS of tobacco, and some other crops, troubled with "soil sickness" in the propagating beds are now spending about one cent per square foot of seed bed for steaming the soil before the seed is sown. Such steaming of the soil with live steam introduced below the surface of the beds kills all plant-disease germs, and all weed seed as well.

MANY a plant loses a week or more of growth unnecessarily after transplanting, simply because its top is not cut back to fit its lessened root feeders. Puddling the roots in thickened muddy water, into which some stable manure has been mixed, helps to start off the transplanted plants. For very early vegetable crops puddling and daily watering until roots get into working order will often hasten maturity two weeks or more.

To Grow Water Cress

By Dr. A. L. Roat

WATER CRESS is easily grown in a tub for the table use in any kitchen garden. Sow the seed in shallow boxes—just sift it on the top soil. Then place a wet cloth over the soil to moisten the earth. This method prevents the seed's being washed to one corner, which usually occurs when watered with a sprinkler.

When four leaves appear on the plants they are ready for their permanent position. For that purpose use a barrel sawed in half. Fill in with garden loam, leaves, and well-rotted manure. Work the dirt fine and bring the earth up to within ten inches of the top of the barrel.

Set the plants six inches apart each way. Water them frequently. The soil must be kept moist. Once a week overflow the barrel with water to carry off any sour deposits. Place a little small charcoal on the soil to keep it sweet and fresh. The cress is cut with a knife, and I have a sufficient supply for the table during the whole season. The barrel must be placed in a partly shady place.

Water cress cut into small bits and covered with dressing makes delightful sandwiches. Also tie a few stalks of cress round the end of the chop bone before serving. I use it to mix with minced ham for sandwiches. It is tasty when served with fried ham, bacon, or liver. Cress is good cut into bits and added to salad—walnuts, apples, celery, with dressing of either olive oil or vinegar.

Will This Plan Work?

By N. Brunner

LAST year, as in every other good peach year, scores of carloads of peaches went to waste in the various peach-growing districts for lack of a market.

Here is a plan that has been developing in my mind for several years. Let peach growers distant from the central city markets unite for the purpose of supplying car lots of peaches to communities of farmers and villagers within a radius of 100 miles or so. Find out what the freight will be to the different nearby points, then advertise in local papers just what good quality peaches can be sold for in bushel lots or more from the car. Arrange for someone to act as agent to dispose of the peaches direct from the car, or else have one of the growers accompany the car.

Shipments of the kind described could be delivered promptly and in good condition by freight, and ought to make possible a saving of 50 cents to \$1 a bushel. By this plan thousands of families in sections remote from the large cities would buy a bushel or two, or more, of peaches each year, where a few quarts are ordinarily bought at a retail price of 10 to 15 cents a quart.

Dwarf Lima Beans

By John Gregory

MANY market gardeners dislike pole Lima beans because of the work and cost involved in staking. Therefore the dwarf Lima varieties are preferred. Among the most popular I have found is Fordhook Improved. Hot weather, with frequent rains and hot nights, favors production; but long dry periods reduce the yield unless artificial moisture is supplied.

As soon as the plants can be seen, cultivation begins. It should be repeated each week, always while the plants are dry and until the vines need the space and interfere with the cultivator. Hoeing between the plants is necessary to keep down weeds. It need not be done more than twice, however, near the beginning of the season. After frost nips the crop the vines are plowed under to rot over winter and form humus.

Bush Lima beans are harvested when the pods show that the beans inside are at least one-half inch long. Generally the first picking is a very light one. It would not pay but for the high prices paid for early Limas. Picking in the large trucking sections is done mainly by Italian women on a time basis. Vegetable baskets are most popular as containers.

It is a trick of the trade to soak the beans in water a few minutes to plump them out and make them reach market in good-looking shape, crisp, and appetizing. This is not done in cool, moist weather, but is advisable in hot weather. Limas must be marketed quickly because they soon lose in quality.

Yields vary from 175 to 220 baskets of pods an acre, sometimes even more. The price varies from \$1.50 a basket in the beginning of the season down to 40 cents or even less when Limas are plentiful. A good average has been about 60 cents. At this rate the returns will be about \$120 an acre. Besides the money there is the value of this crop as a nitrogen and humus maker.



Automobiles

Gasoline Storage

By B. D. Stockwell

A SUBSCRIBER who uses his car a great deal wishes to know the advisability of installing a gasoline storage tank, and asks what precautions he should take.

A matter of this kind depends chiefly on what his present facilities are for securing gasoline. If he goes to town frequently on other business, and if he can get gasoline of good grade there at a reasonable cost, a storage tank on the farm would hardly be of enough benefit to warrant the investment. Gasoline evaporates readily, and he would have to stand some shrinkage.

The chief precaution in handling gasoline is to keep flames, hot coals, and electric sparks away from mixtures of gasoline and air. Gasoline is really dangerous only when mixed with air at the rate of from 1.4 to 6 parts for 100 parts of air. If it is handled in the daytime with such precautions as are specified in fire-insurance policies, and if the tank is kept underground, the danger would be very slight.

When gasoline can be very conveniently secured from a tank wagon that goes through the country and is otherwise difficult to get, a private gasoline storage would be doubtless a good thing, but is not advisable as a general rule, simply for automobile use.

Radiator Too Hot

AN ILLINOIS reader says that the water boils in his radiator, and wishes to know the reason.

In hot weather the water in the radiator will frequently boil, but this is no cause for alarm, since an automobile works best when fairly hot. If the roads are bad, or if the car is forced up long hills or through deep sand, the engine is bound to become very hot, and this may cause the water to boil.

If the trouble persists when none of these conditions are present, something is wrong. The fan belt may be broken, the cylinders may be carbonized, the water in the radiator may be low, but in all probability the engine needs oil.

Price of Gasoline

GASOLINE is soaring again. The consumer is watching it with anxious eyes and a palpitating purse.

There are numerous reasons for this rise in price. It is stated that fields which have heretofore produced the greatest quantity of crude oil have become exhausted, or are producing much less. Also that, owing to the great quantity of gasoline being exported, an insufficient quantity is left for home consumption.

The great question of interest to the consumer is, "What will I have to pay?" The present prices throughout the country are not expected to be increased to any extent by most dealers. Numerous methods of relief are being experimented with.

There is the Rittman process which will allow much more gasoline to be produced from a given quantity of crude oil. At present it appears that there is a great excess of kerosene produced for the amount of gasoline.



This is a tile garage and repair shop. There is room overhead for seeds, binder canvases, and other articles requiring a dry place such as tile walls give

Kerosene carburetors offer another possible solution. Perfected devices in this line have not yet been generally offered to the public. A few have been put on the market for which flattering claims have been made, but they have not reached the stage where the public has bought them to any extent. With this kind of carburetor it is necessary to use gasoline for starting and then to switch over to kerosene after the motor and its accessories are thoroughly warm. This makes a more complicated carburetor problem than the one now in use.

Some drivers have experimented with a mixture of gasoline and kerosene in various proportions in order to reduce the average price per gallon. This has been satisfactorily used to a mixture up to half and half. Success depends upon the motor and the weather conditions. Kerosene vaporizes more slowly than "gas," and in using such a mixture it will be necessary to resort to the priming cups for starting, and to allow the motors a longer time to warm up. It will also be necessary for the motor to be equipped with a method of heating the gas intake from the exhaust. Practically all late cars are so equipped, but on some of the older models it will be necessary to apply a flexible metal tube and exhaust stove to the exhaust pipe and run the tube to the carburetor intake opening. Such outfits cost from \$2 to \$5, depending upon the amount of material necessary.

No doubt, if gasoline remains high, efficient kerosene carburetors will be developed, because there is no lack of kerosene.

American inventors have solved more knotty problems than getting around present gasoline prices.

Change Tires About

WHEN for any reason you remove automobile tires, always place the side that was away from the car towards the car in putting them back. Most of the wear on a tire occurs on the outside edge. By putting the worn side towards the car, the unworn part of the tire will receive the hardest wear, and in that way the tire will wear out on both sides instead of wearing through in one place. It is the plan used by a man to make his socks last longer. He alternately wore the left sock on the right foot, and vice versa.

And Still Has a Car

By Edward T. Erwin

IN THE past five years I have had the privilege of driving three different makes of automobiles of the \$1,000 class. I probably have driven over 50,000 miles in these five years, so I am in a position to know what it costs to run a car.

I have always claimed that automobiles are expensive, and I always shall. But, then, I have one just the same.

My first automobile certainly was as good a car as you could wish for—but I had the misfortune to break my rear axle. This item cost over \$20. The garage man made a mistake in assembling it, so I drove the car to his garage. The car had not been in there over three hours when a carelessly thrown match ignited some oil on the garage floor. This fire destroyed \$10,000 worth of automobiles, besides other things stored in the garage.

Remember, my \$1,000 automobile was in this fire. The remains were worth about \$150.

This could be termed "hard luck," but, then, you are liable to have a dangerous accident any time. The damages in case of accidents may cost you all the way from \$1,800 to \$10,000.

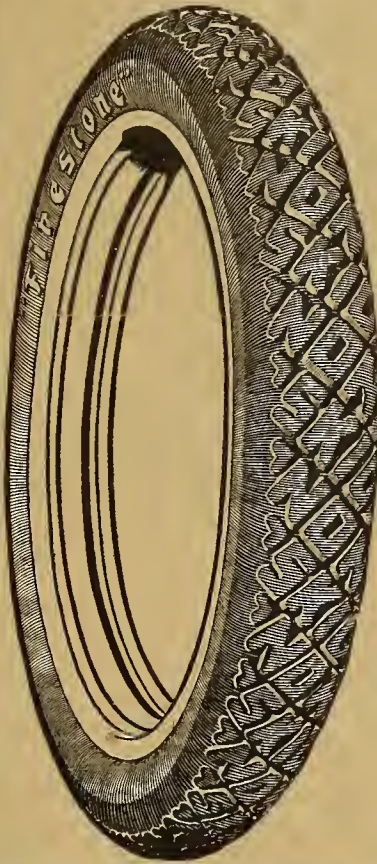
I bought another car and drove this two years with the prevailing expense. I traded this car about two months ago for another \$1,000 car, giving \$650 in the trade.

But, as I said, I want a car just the same.

The Last Word "MILEAGE"

OPINIONS may differ on what constitutes a good tire until the mileage record speaks. Then Firestone mileage settles the argument. Firestone mileage talks convincingly. It has talked motorists into demanding twice as many Firestone Tires this year as last. It has talked many thousands of new dealers into joining the Firestone forces. It will talk you into insisting upon Firestones on every wheel and on the spare.

Firestone Non-Skid Tires



now have Red Side Wall and Black Tread, a handsome color combination, the trademark of Firestone. It adds a touch of elegant "difference" to any car without showy effect.

The Firestone Non-Skid Tread means big economy of extra mileage while affording the greatest possible security against skid or slide.

Firestone Accessories give that help at the critical moment which the farmer—of all busy men—so much appreciates.

Firestone Cementless Patch FREE

Let us send you a Firestone Cementless Patch Free—also copy of book, "Mileage Talks," No. 45. Write today. Meantime, see your dealer.

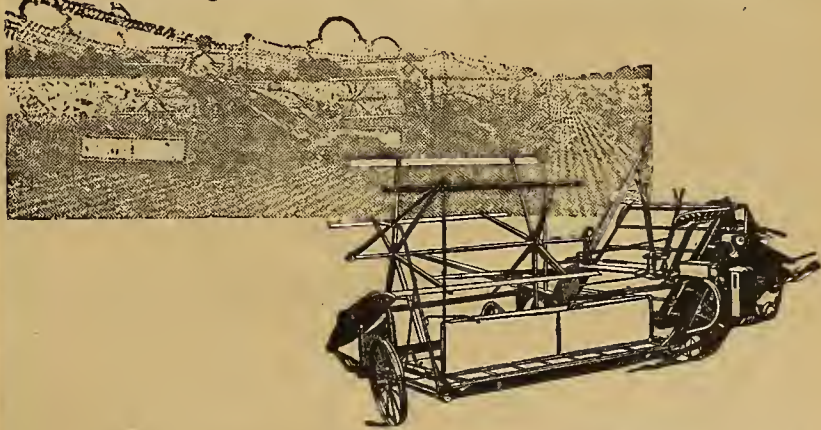
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Why Take A Chance?



WHEN you buy your grain binder this spring, do not make the mistake of experimenting with an untried or cheap machine. You cannot make money that way. A binder is useful for one purpose only—to get all the grain cut and bound in the short time allowed for the harvest. That is no time to risk experiments, especially when you do not have to. Choose your binder from one of the old reliable, yet up-to-date in every way, International Harvester binders sold under the trade names—

**Champion Deering McCormick
Milwaukee Osborne Plano**

You will find practical farmers, who know what particular harvesting difficulties they must overcome each year, urging the use of some binder with an IHC name. Years of building and betterment have resulted in these machines that insure as complete a harvest as it is possible ever to get, even under worst field and grain conditions.

Look for the same high-grade workmanship, the same famous IHC quality in IHC twine. Make the most of your crops. Your local dealer can furnish you with IHC binder repairs and twine. See him or write to us for information.

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Without Spending One Cent

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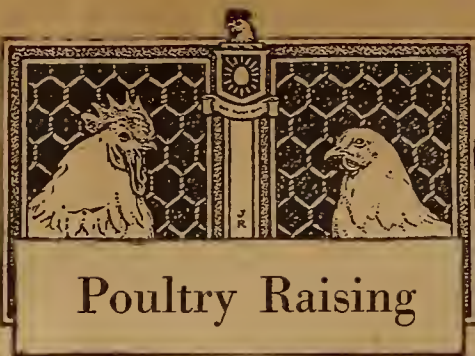
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Send a postal to FARM AND FIRESIDE to-day. Just say you want an Air-Rifle without having to pay one cent. Thousands of happy boys easily earned them this way.

WRITE TO-DAY

Address

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Springfield, Ohio



Poultry Raising

Champion Carrier Pigeon

By Carroll Van Court

ON THE twenty-fifth of August, 1915, a black carrier pigeon, Ben Bolt, was loosed from the top of a building in Norwalk, Ohio. On the thirtieth of August a tired bird landed on the roof of its home dove-cote in Los Angeles, California, after having traveled 2,200 miles in five days nine hours thirty-one minutes and some odd seconds.

This world record was conducted under club rules and the official superintendence of the L. A. Messenger Pigeon



Association. The bird carried a seamless band around its foot with the mark of the committee on it.

The owner, Mr. Carl Skofield, lives in Los Angeles, and keeps about thirty flyers of various kinds.

The father of Ben Bolt was the first pigeon to fly over the Rocky Mountains. Mr. Skofield discovered that only by breeding flying carriers with wild mountain pigeons could he get a flyer that would cross high mountains. Ben Bolt is three years old, and has a strain of wild mountain Bandtail pigeon in him. He was stolen once, but he returned as soon as he was let loose.

Chicks Check Borers

By Samuel Haigh

FURTHER trial with the asphaltum treatment for control of fruit-tree borers has proved disappointing in this section of the country. Treatments were made again last summer, but this spring we found more borers than ever before. It is quite possible that our former immunity from borers after treating with asphaltum (painting the base of tree with it) was because I had several hundred little chicks running among the treated trees. We noticed they were very busy picking at the trunks of the trees as long as they were allowed to run in the orchard. I now think they ate the borer eggs as soon as they were laid, and any young grubs that hatched.

Last season we moved our brooders into the prune orchard, and had only about a dozen little chicks in the peach and apricot orchard, so that the borers had plenty of opportunity to work unmolested. This season we shall keep several hundred chicks in the peach and apricot orchard, and I shall note the effect on the borers.

A friend from Australia informs me that they have birds there that they call "babblers" on account of the noise they make, and that they are of such great value in an orchard that they have earned the name "codling-moth eaters." They also go by the name of "the twelve apostles," as they go in flocks of about a dozen.

Buckwheat a Good Feed

By A. J. Legg

THERE is a mistaken notion about the feeding value of buckwheat. I know farmers who believe buckwheat is adapted only to feeding poultry.

The analysis of buckwheat grain given by Professor Hunt in "Cereals in America" is as follows: Ash, 2 per cent; protein, 10 per cent; crude fiber, 8.7 per cent; fat, 2.2 per cent.

Buckwheat middlings approach gluten meal, cottonseed meal, and linseed meal in richness in protein.

Also I quote from the same author: "As compared with grain of wheat, buckwheat contains a somewhat lower percentage of protein and a much higher percentage of crude fiber."

The nutritive ration of buckwheat is 1 to 7. Buckwheat is a slightly more eubonaceous food than oats.

As to practical results, I have fed buckwheat to poultry, hogs, cows, and horses with good results in each case. However, the buckwheat should have some other concentrates mixed with it to make a balanced ration for all of the above-named animals except horses.

Horses do well on buckwheat fed with good mixed hay, and they relish it as well as they do corn or oats. The Japanese buckwheat is not so heavy per measured bushel as is the silver-hull variety.

Flash-Light Reading

By Roy H. Childers

I HAVE often found reading the incubator thermometer without artificial light to be difficult. For the past two seasons I have been using a pocket flash light costing about one dollar, which answers the purpose perfectly. Kept in place on the incubator, much time and annoyance is prevented and all danger of mistaken readings are avoided.

A FORCEFUL argument in favor of machine-hatching is the number of eggs broken and spoiled by sitting hens. Even under the most satisfactory hen-hatching conditions the breakage will often average 15 to 30 per cent of the eggs set. Other eggs are smeared when not broken, and the chicks lack air to develop sufficient vigor to break the shell.

"Knock-Out" Bugs for Chicks

By G. H. Lampson

ROSE BUGS are a dangerous diet for young chicks. This statement has been made before in FARM AND FIRESIDE. Now comes G. H. Lampson, an experimenter who fed 150 chicks of different ages, in small lots, rose bugs; also an extract made by soaking the crushed bugs in water. He found 15 to 20 rose bugs, when eaten by chicks a week old, produced death; 25 to 45 rose bugs killed three-weeks-old chickens; ten-weeks-old chickens survived all the bugs they could eat, but the effect was injurious.

A Black Eye for Eggs

By Frank W. Orr

SPRING egg prices are getting a "black eye" in various sections of the country from the growing practice of mixing the infertile eggs that have been tested out of the incubator along with fresh eggs. These eggs, which have been incubated for about a week, are known as "clears." They are not actually beyond the edible stage for bakery use, but they soon reach the stale stage, or a worse condition. When many "incubators" are found by the candling test, the quotation for all eggs from the territory sending such poor stock is graded down accordingly. Co-operative shipping and standardization is the remedy for this bad business practice.

A Kansas Poultryman

DAIRYMEN find that high-grade cows sometimes equal pure-bred animals for returning profits from milk produced. At the Kansas Experiment Station, under the direction of Wm. A. Lippincott, the work of grading up mongrel farm



hens is being carried on. Pure-bred males of heavy-laying strains of Barred Rocks, White Orpingtons, and White Leghorns are being used for this purpose. Check pens are used to determine what results are being accomplished. Mr. Lippincott is also investigating the fattening of poultry by the milk-feeding process.

Poultry Brought Courage

By Gordon Walker

SO LONG as you can keep up courage, have hopes, and try to be contented you will manage some way. But if once you get discontented it is hard to pull yourself out, and again take an optimistic view of life.

"One ship drives east and another west,
With the self-same winds that blow;
'Tis the set of the sails.
And not the gales,
Which decides the way to go.
Like the winds of the sea are the ways of Fate,

As we voyage along through life;
'Tis the will of the soul
That decides its goal,
And not the calm or the strife."

This is why I became discontented. I quit school when I was seventeen years old, though I was eligible to enter high school. My parents wanted me to continue going to school and learn some other profession than farming. But as I liked farm life and was very fond of nature, I resolved to remain on the farm. So I worked year after year, never receiving much encouragement, my father always saying there wasn't any money in farming.

I read a number of government bulletins and farm papers, and took notice how some farmers in our neighborhood were prospering. I concluded there was money in farming by improved methods. But my father was a stand-patter and he would rather discuss politics than farm methods.

I never received any pay for my work, but always was furnished with good clothes and some spending money. When a boy arrives at twenty-one he wants to start in business for himself, however small it may be. If all farmers would start their sons in a small business of their own as a side line the number of young men leaving the farm and going to the city would be greatly reduced. You know that youth means vigor and ambition, therefore if a boy cannot realize his ambition on the farm, can you blame him for going to the city where he can have a job of his own and sometimes a "boss" that treats him better than his own father does? Give the boys a square deal and nine tenths of them will remain on the farm.

A few months ago I became thoroughly discouraged. The more I thought of my position the more I realized that I was nothing more than a common slave. I did my work when told to, but never took the lead for fear I might not do it right. Finally my discontent reached its crisis. I went to my mother. I never go to my father to ask for a favor or information, for he never speaks to me much unless it is to give orders or directions about some work he wants me to do, and then he generally has Mother tell me. So in this case I had Mother to act as mediator.

I told her that I would give Father three days to consider if he would either rent to me the farm for a certain amount of grain rent or give me enough money so that I could start in some kind of a business on the farm in a small way, and at the same time I would do my regular farm work. At the end of the three days, if he hadn't given me any satisfaction, I had decided to leave the farm; but I am glad to say when the time was up he offered to give me an old shed that he had no use for, and which he agreed to move into the apple orchard, and Mother said she would give me 30 hens so I could start in poultry-keeping. I always was interested in raising poultry, so for this small favor I agreed to stay at home; and now the clouds of discontent have rolled away and I am again happy and hopeful, for I will have a little business of my own, which, if managed right, will return me a good profit every day in the year.

Two Eggs for One

By John Simpson

HOLDING the cheap spring eggs over till fall and winter to take the place of high-priced ones for cooking is good business economy. More and more poultry keepers are storing a supply of late spring and early summer eggs in water glass or other egg preservative for this purpose. Also a growing number of thrifty town and city housewives are following suit.

A quart of liquid water glass costing about 20 cents, mixed with ten or eleven quarts of boiled water (after allowing same to cool), will preserve 14 to 16 dozen of eggs. The eggs must be absolutely fresh—not over one day old—when placed in the water-glass solution. Do not wash the shells, and make sure none are cracked. Earthenware crocks are best, but wooden containers will answer the purpose. Galvanized or tin vessels cannot be used.

Place the egg containers in the cellar or a moderately cool room, and keep covered to prevent evaporation.



Crops and Soils

Rye for Pasture

By G. L. Rothgeb

EDITOR'S NOTE: Mr. Rothgeb is a practical man, and one of the officers of the South Frederic Live Stock Breeders' Association, a Virginia organization.

WHY not make rye a staple crop? The dry season of 1914 and the late spring of 1915 emphasize the importance of growing a crop that can be put to several uses in a spring when adverse conditions make feed scarce.

Rye can be sown here at the last working of corn or after early potatoes, or any time after that up to November. If sown at the last working of corn ahead of cultivation, it will make a splendid pasture in early winter after corn is gathered, also in early spring; and if not pastured too closely it will make a good stand of hay.

Some claim it makes the best hay just after heading, and others while in the milk. Stock relish it and thrive on it when made at either time or in the interval. Should conditions make it necessary to pasture closely, it makes good sod to turn under for corn or other spring crops. Even if pastured closely with what stubble is left, the roots make lots of humus. Pasturing closely where the ground is ordinarily fertile seems to develop an extra heavy root growth; and if only this were turned under, the land would be in a much more fertile condition than if left bare over winter.

If you do not wish to pasture or make hay of the rye, you can turn under the entire crop at about heading time or a little before, according to rankness of growth. That makes an excellent green-manure crop. One farmer in our section has for two seasons sown rye and crimson clover about the middle of August with good results. The rye was cut for grain, and by that time the clover had ripened seed, and enough was threshed out with the rye to make a fair seeding the second year. Plowing under this stubble of rye and crimson clover was a decided advantage to the land.

It is surprising how much feed an acre of good rye will make when cut from day to day and fed green. You can cut enough at one time to last several days. It may be left in the swath and taken up as wanted, or hauled in and piled up.

Judging Seed Drills

"MY SEED blew out of the ground" is an expression you sometimes hear even though the man has used a drill.

A good drill properly handled will not let seed blow. So if you find seed on top of the ground you can at once conclude that it was never in the ground and properly covered.

That is important to watch when buying a drill on approval. Another consideration is the accuracy of the feed. To test this, jack the drill up off the floor or ground, put half-peck measures underneath the tubes and turn the wheels. See if all the tubes drop the seed uniformly and in the quantity shown by the indicator.

Sells Vaccination Insurance

AN UP-TO-DATE serum concern sells a hog insurance in connection with its serum and virus. The insurance runs for a term of five months, and costs 25 cents to a dollar per head, depending on the size of the hog vaccinated.

The Plant's Food Chopper

A GOOD seed bed is free from clods, sods, and bunches of trash. If any of these are present they will hinder ground water from rising into the seed bed.

One soil expert says: "Trash turned under is responsible for more crop failures or short crops, especially in dry years, than all other causes together."

By trash is meant weeds, green manure, stubble, cornstalks, and coarse manure. The only sure remedy is first to disk all the trash into the ground before plowing, and, if there is much of it, to disk again after plowing. The disk chops up the trash and clods and makes the seed bed compact. In the semi-arid districts you will want to use a sub-surface packer too.

Raising King Corn

By Alfred Flegg

CORN does well if it is cultivated after a rain in Nebraska. The number of times a field of corn is plowed depends on the time available, and if the plowing will do the field and crop some good.

The first cultivation is done early. This gets rid of nearly all the weeds. As much dirt as the corn will stand is thrown toward the plants at this time.

The corn is cultivated as deep as possible the second time. The ground is thus loosened to a good depth. The corn roots have not spread enough to be injured by the deep cultivation.

The third cultivation is made two and one-half to three inches deep. The corn roots at this stage of the corn's growth are across the rows. Deep cultivating tears up the roots, and during dry weather the corn will wilt from want of moisture. The last cultivation is given the field to make a dust mulch, which prevents the evaporation of much moisture.

No Wonder Hogs Root

ONLY a little more than half of a clover crop is above ground. One crop expert has found that for every ton of clover hay cut, about 1,600 pounds of root and stubble were left. This means that five ninths of the crop was cut and four ninths was left in the ground.

Fertilizer Economy

STABLE manure has long been known as the best all-round practical manure, and as it contains potash, phosphorus, and nitrogen, it is a complete fertilizer. But it contains much more nitrogen than is ordinarily needed. To give the nitrogen in manure its full effect, use potash and phosphoric acid with it.

Drain Tile to the Acre

THESE figures will serve to give an idea of the amount of drain tile required for an acre of land. When the lines of tile are laid 15 feet apart, 176 rods per acre will be needed. Thirty feet apart will require 88 rods; 36 feet apart, 74 rods; and 42 feet apart, 63 rods. Always lay drain tile a little below the frost line.

About Cotton

SOUTHERN farmers are getting fooled on cotton sold on the claim that it will yield as much weight of lint as of seed. It will; but while the ordinary varieties will yield twice as many pounds of seed as of lint, they will yield more lint than the "half-and-half" cotton.

Moisture from the Air

A DRY soil will absorb considerable moisture from moist air. One soil expert has found that a thousand pounds of perfectly dry sand will, during a night of twelve hours, gain two pounds. Loam soil will gain 21 pounds, and clay loam 25 pounds.

To Restore Fertility

ABOUT 80 per cent of the fertility that a crop takes out of the soil is restored to the soil if the crop is fed to live stock and the manure preserved and applied to the land.

Prefer Ground Limestone

THE New York authorities have proved that "limestone (ground)" is considered to produce better results than burned lime, and is safer and more convenient to apply." If all the ground limestone will pass through a sieve of ten meshes to the inch it is fine enough.

To Raise Cotton

THE average cost an acre of making a crop of cotton is \$20.35, and the average yield of lint an acre is 247 pounds. The crop must sell for as much as 8.24 cents a pound in order to return the cost of production. All the cotton grower receives above that contributes to the profits.

Few Kentucky soils need potash is the contention of S. D. Averitt of that State. He bases his opinion on soil analysis made within the last twelve years, and on crop requirements.

GRIMM alfalfa seems to be the best kind for New England conditions. It does not make as good a showing at first, it is stated by the New Hampshire investigators, but has better staying qualities in that climate.

Top Dress your wheat

The Rural New-Yorker says: "This is a Season when top-dressing for the winter grain will pay good dividends.

By 'top-dressing' we mean spreading a moderate quantity of soluble plant food over the grain fields. There are some seasons when the grain comes through the Winter in such shape that this top-dressing would hardly pay, but this year, the sudden cleanup of Winter reveals the need of a little stimulant to start the grain off quickly. Much of the wheat was late seeded last Fall, and did not have a good chance before Winter set in. Then came a season of cold weather with bare ground and then ice and snow. Now comes a quick thaw with a hot sun on the plants as they are uncovered. Add to this condition the fact that prices will be high, demand heavier than ever, and the total crop a little short, and we have every argument in favor of using available fertilizer this Spring. It will be impossible to obtain potash economically this year, *but nitrogen and phosphoric acid will pay now if they ever did.*"

There are no better Top-Dressing Fertilizers than the

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Ask our nearest Sales Office for prices on quick-acting top-dressing fertilizers for this season. The Rural New-Yorker's advice is good and practical.

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Wheat, Oats, Barley, Alfalfa and Grasses

The winnings of Western Canada at the Soil Products Exposition at Denver were easily made. The list comprised Wheat, Oats, Barley and Grasses, the most important being the prizes for Wheat and Oats and sweepstake on Alfalfa. No less important than the splendid quality of Western Canada's wheat and other grains is the excellence of the cattle fed and fattened on the grasses of that country. A recent shipment of cattle to Chicago topped the market in that city for quality and price.

Western Canada produced in 1915 one-third as much wheat as all of the United States, or over 300,000,000 bushels. Canada in proportion to population has a greater exportable surplus of wheat this year than any country in the world, and at present prices you can figure out the revenue for the producer. In Western Canada you will find good markets, splendid schools, exceptional social conditions, perfect climate, and other great attractions. There is no war tax on land and no conscription.

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Live Stock

Save the "Runts"

By Mrs. T. D. Smith

NOTICE you ask your subscribers to write and give their experience with live stock, so I want to tell the farmers' wives how I make money from the runt pigs.

I have heard men say, and some farm papers advise, "Kill the runts!" I say give them to the wife or daughter.

There is always a runt in every litter of pigs, so I take them in three or four days or a week, and begin by giving a small amount of fresh milk, and increase gradually till they can take all they want, after which I push them with milk and swill till fall, then fatten with grain, and I always make them weigh from 150 to 200 pounds by butchering time. So you see it pays well to push the runts.

I made \$14.70 from one runt last fall, that was too weak to squeal when my husband brought it to me. When I sold it, it weighed 210 pounds, and sold at seven cents per pound on foot, and we did not miss the feed. I say, give the runts to the wives and daughters. It pays.

Live Stock Pays Debts

By J. H. Stein

WE WERE \$900 in debt. This may not seem much to some of you nowadays, but in 1904 it looked like a canyon to us. Corn 8 and 10 cents a bushel, wheat 50 cents a bushel, butter and eggs 8 and 10 cents—that wasn't very encouraging to a poor renter for a start, but something had to be done.

We didn't get discouraged; we kept everlastingly at it. As we lived close to a good-sized town, we got customers for our butter and eggs where we received better prices and cash, so we could buy where we got the most for our money. We also raised quite a lot of early potatoes that gave us money during the summer months to meet harvest expenses. In this way we saved our grain to meet the notes at the bank.

To make things more interesting we would get hauled occasionally, lose a good horse, a cow, or some hogs, to say nothing about hot winds and drought. More than once when things looked bright some unforeseen event like hail or drought would come along and we would slip back, it seemed to us, farther than ever.

But we held our ground. We lived according to our income, and if other renters about us bought fine carriages and fine clothes we paid no attention, but kept right on with the one object in view—if possible to own a home of our own some day.

When that debt was paid, things began to look brighter. We then got some

money to do business with, and the training we got during those years of drought and hard times was a help to us now, and we put it to good use. We turned to raising more hogs and cattle and sowed alfalfa; and here I must give the bulk of the credit to the hogs and alfalfa, the greatest combination on earth.

I have often said, and say it again, the hog may be a poor draft animal, but if you get enough of them hooked up and headed in the right direction they'll invariably pull you out of a rut. We have a good quarter section of Nebraska land, a good home, and good buildings. When the roads and weather permit, my wife and children and all of us get aboard our new automobile, and we go out for a ride to the city or surrounding towns.

Rearing Colts

By F. Bosley

ALTHOUGH I am raising colts on a very small scale, I have had wonderful success. I have but one brood mare. I did not begin breeding the mare until she was seventeen years old. She has raised five colts, and is now twenty-three years old. She is intelligent in her care of her colts, and has a most abundant supply of milk. Three of the colts are practically perfect in their conformation, disposition, and high spirits. Her other two colts are above the average, but they did not have so good care after they were a year old as the other three.

In the development of any young animal, the feed and care count nearly as much as the breeding. My mare has always had generous feeding and abundant exercise. During her pregnancy she had oats and good mixed hay and occasional bran mash. I always turned her in a field by herself in pleasant weather, and put her in a box stall at night. I never leave her out in bad storms. Her colts have all been born strong and well.

As soon as the colt is born I begin to handle it, with the result that the colt soon permits me to pick up all of its feet and handle them. It also learns to recognize my voice. When I have gained the colt's trust and confidence and it is strong enough, I halter-break it. I am gentle with colts, but always firm, and I soon have them leading like horses.

As soon as the colt is old enough to eat I give it a little bran and oatmeal. Before long it will eat grain regularly with its mother. I never wean colts very young. My two best ones nursed till they were more than nine months old. After weaning I gave them about two quarts of oats twice a day, and turned them out on pasture; but I never left them out in bad storms. In winter I gave them the run of a large box stall, and let them out for exercise every day. I feed oats and good mixed hay and keep salt where they can get it whenever they want it. Judging by my experience, then, if you want extra good colts you must not only breed wisely but you must also give them extra good care and feed.

Overfeeding Lambs

DIETETIC errors—an unbalanced and too rich a ration—and not germs, as many persons believe, cause the death of large numbers of lambs every spring. A lamb is only a baby sheep, and is about as susceptible to digestive disorders as the baby of the human family.

Raising Orphan Calves

By Mrs. L. A. McCumber

SOMEONE may be helped by my experience in raising young calves by hand. I have raised several that way. Three years ago I rescued a little heifer calf from being knocked in the head, because it was so poor. It was so weak it could hardly walk, but I bought it and also got some calf meal. Then I took a pint of milk, scalded the calf meal with the milk, and coaxed the calf to eat.

I let it suck my fingers the first two or three feedings, until it learned to drink from the pail. After that I set the pail down and it would help itself. It is best to set the pail in a box that holds it snugly, and is fastened to something so the calf can't tip the pail over and spill the milk.

Well, I sold this calf last fall, or perhaps I ought to say I sold this cow, for she was then a three-year-old and brought me \$53. Her one-year-old calf brought me \$31. I now have another young heifer calf that was small and sick when I got her. It had the scours, and would fall down when trying to drink milk. Our folks laughed at my "skeleton calf," as they called it, and told me to knock it in the head and throw it to the dogs, for it could not live except by a miracle, and even then it wouldn't amount to anything.

As it wouldn't drink milk, I thought I would try ground corn and oats mixed, which I had on hand. At first I had to put the feed in the calf's mouth and hold it shut till the calf swallowed it, but before long it began to relish its ground feed. I also fed some dry flour for the scours, and the calf was soon able to go out and browse in the field.

When I wanted her I would get the pail and call, and she would come on a gallop. The calf is now eight months old, nicely built and of good size.

The Tick's Toll of Blood

By John Coleman

THE cattle tick and his family eat 550 pounds of meat or blood that would make that quantity of meat from each beef animal raised in the tick-infested territory of the South.

Stated in another way, the average weight of the beef cattle raised in the tick-infested territory is only 450 pounds, as compared with 1,000 pounds, which is the average weight of beef cattle in States like Wyoming, Idaho, and Montana.

The Lambing Season

By Millard Sanders

DURING the lambing season the ewe flock should be visited early in the morning, the last thing at night, and once during the night. This insures a minimum lamb loss.

Some sheepmen feed the lambs little or no grain until they are weaned, but they are kept on good pastures with their dams. If the pastures are good the ewes are not fed any grain. Until the pastures have a good start the ewes are fed a ration of oats and corn silage along with alfalfa, clover, or prairie hay. The lambs as well as the ewes should have plenty of fresh water to drink, and have access to salt.

More Goat Meat

By Harry B. Potter

THE increasing use of goat meat for food is a matter of public knowledge, but accurate figures concerning it have been hard to secure since goat meat travels in the same commercial channels as mutton. However, the Secretary of Agriculture's latest report on federal meat inspection throws some light on the subject.

At the 1,893 establishments where federal inspection was maintained in 1914, 121,827 goats were slaughtered. This is the largest number recorded, and is about twice last year's figures.

Self-Fed Hogs

WHICH would you rather pocket, \$2.35 profit a hog by feeding a ration made up of 95 parts corn, 5 parts tankage, and alfalfa hay in racks, or to jingle a paltry 64-cent profit a hog by feeding corn alone? The Nebraska Station got these respective profits to the hog by feeding in the two ways described.

Protect Sheep

THE coyotes of Montana have been artificially infected with the mites of sarcoptic mange and are dying from it. The sheepmen are said to favor the spreading of this disease among the coyotes, rather than the giving of bounties for their destruction. The objection to it is that it kills dogs also.



"We were \$900 in debt, and renters. We got a start with butter, eggs, and vegetables. Then cattle, hogs, and alfalfa paid our debts," said Mr. Stein



Dairying

News of Dairymdom

By Carlton Fisher

AN EIGHT-COW milking-machine outfit operated by electricity showed a power cost of a fifth of a cent per cow for each milking. The current was figured at 10 cents per kilowatt hour.

FLY repellants have been tested by several experiment stations as a means of keeping flies off dairy cows. The repellants were found to be satisfactory for a day or two, but must be applied at least three times a week for satisfactory results.

A JERSEY cow, Merry Maiden, owned by a Maine breeder, holds the world's record for the richest milk. The test of this cow's milk for 365 days was 8.13 per cent fat. Her lowest monthly average was 7.13, and her highest, made during the last month, was 10.05 per cent.

Complaint Bettered Market

By Allen J. Titus

"IF YOU want our cream brought to your town, you will certainly have to supply a better market. I am through bringing my cream here till you can show me higher prices." Thus spoke one of the most thrifty dairymen in the vicinity of a western Michigan town to a business man.

"I don't like to say such things about a town that represents my trading place, but the conditions down at this creamery are punk," pursued the man. Asked as to his particular grievances, he replied: "You held a meeting for the farmers of this vicinity and the business men asked us to bring the cream here instead of sending it to several different points about the county."

"This was our trading point, and we believed in you, especially when you told us that if this company did not do the right thing your Business Men's Improvement Association would see that parties were placed in control that would do the right thing. Now it's up to your association to make good. This company is owned and controlled by city people, men who live miles away from us and are not interested in the welfare of the locality except to skin the farmers just as much as they dare."

When asked if other creameries were paying more for butterfat, the man answered, "Why, yes, over at Fremont, just 17 miles away, they are getting 23 cents, while here we are forced to take 18 cents per pound."

The business man thought seriously for a moment and promised to look into the matter at once. There are always complaints to be heard in every line of business, and especially so when farmer and merchant are brought together. That evening the Business Men's Improvement Association met in the village hall, in the little town of 600 people. Here the story was repeated, the business man telling word for word the complaint registered by the farmer.

Study Price of Butterfat

A committee was named to look into the matter and to ascertain just how much it was possible to pay at certain seasons of the year for butterfat. In two weeks' time a well-advertised meeting of farmers was held at the same village hall, and the Improvement Association served a banquet to the dairymen. The secretary of the association gave the dairymen to understand that the farmers' fight was the merchants' fight as well.

Accurate figures of the cost of building, cost of equipment, and even the wages of a first-class buttermaker were placed before the meeting. Then the Improvement Association agreed to assist in organizing a local dairymen's association. A plant was to be built, and only the farmers and dairymen should be stockholders, one feature of the by-laws being that no shareholder was wanted who did not furnish cream at all seasons of the year to the creamery. Time saw the erection of suitable buildings, equipment was placed, and from Illinois came the buttermaker.

At the end of the first six months a meeting was called, and it was found possible to declare a 17 per cent dividend,

which very properly was not done, seeing that the ensuing six months would see a call for churns and ripeners of larger capacity.

At the state dairymen's convention held in Kalamazoo, February 8th, C. L. Burlingham of the U. S. Dairy Division said to the five hundred in attendance, "What you dairymen of Michigan need is co-operation. You need community meetings more, for you need to follow up what you started." He told how the greatest of all rural associations, the cow-testing association, was originated in Michigan, and how as a result more than 5,500 dairymen in the United States know each month just how their business stands.

Doubled Butterfat Production

"From Michigan," he said, "this association has branched into 32 States with 225 different associations, and to-day only eight of these associations are in the State where the idea was given birth." The speaker touched upon the fact that Newaygo County, through the adoption of this plan, increased the average annual amount of butterfat per cow from 140 pounds, ten years ago, to 280 pounds last year.

A remarkably good season was experienced by the new creamery during 1915, as the following table shows:

Amount of butter made.....	189,133 lb
Sold for	\$50,657.13
Av. price per pound.....	.267
Butterfat received.....	151,320 lb
Paid for butterfat.....	\$45,026.13
Receipts of company for making butter	\$5,673.99
Profits from feed and seed sold by company	693.72
Total earnings.....	\$6,367.71

A 10 per cent dividend was declared. Thus the justified complaint of one dairymen brought about new conditions which benefited the entire community.

Made on Rainy Days

By Joseph E. Simm

SINCE building this silo, I noticed the article in FARM AND FIRESIDE entitled, "You Can Do It Yourself." The silo is



Building this 50-ton silo was mostly a one-man job

some of my own work, and I made it on rainy days.

I purchased the lumber, which is regular silo stock, from a local lumber yard for \$45. I bought 5/8-inch round iron stock for hoops, and cut the threads. I purchased the lugs from a supply house at 10 cents each. The silo has 24-foot staves and a six-foot pit.

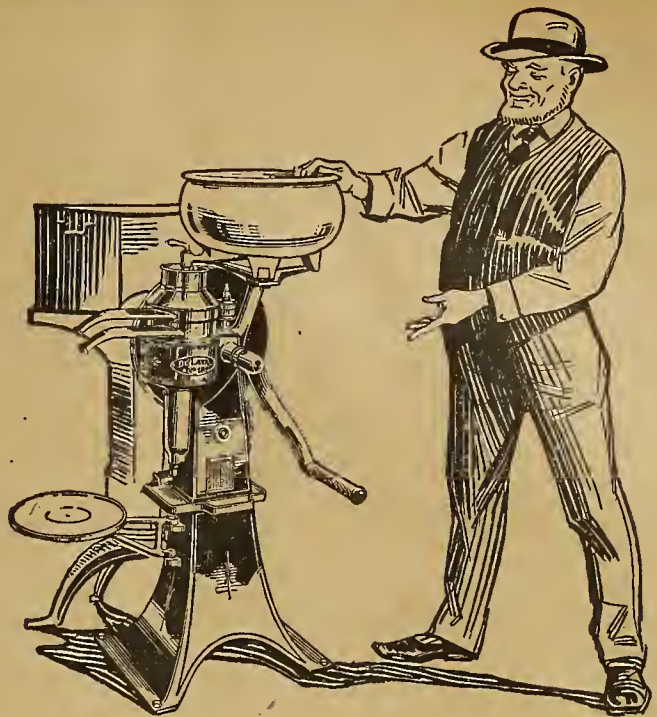
Except for the cement work in the pit, I did all the work myself, and I never worked at the carpenter trade before in my life. The silo is 10x30 feet. Material and pit cost \$100, and that was the only cost, not counting my work.

No One Silo Best

THE Iowa Experiment Station reports hollow tile, concrete, and wooden stave silos are equally well adapted to the safe storage of silage. The investigations show that no importance can be attached to the claims that one type of silo is superior to another in regard to loss of heat through the silo walls.

The experiments show that wooden stave, hollow tile, and concrete silos all preserve the silage in perfect condition when the silos are air-tight and the silage is cut in short lengths and properly packed.

Likewise, the Storrs Experiment Station, Storrs, Connecticut, which some years ago maintained that wood silos kept silage in better condition than silos made of concrete, has revised its attitude. Dr. E. H. Jenkins, director, states that silage keeps as well in properly built concrete silos as in properly built wood silos. Recent investigations have shown this to be the case.



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Then if you go a step farther and turn the cranks of the two machines side by side for fifteen minutes, running milk or water through the bowl, you will see still more difference.

And if you will run the two machines side by side in practical use, as any De Laval agent will be glad to have you do, the De Laval one day and the other machine the next, for a couple of weeks, you will see still greater difference in the work of the two machines.

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The Delayed Courtship

Enter a Lovely Girl, a Stern Father, and a Persistent Lover

By LULU MOODY

Illustration by Charles Grunwald

A SENSE of humor might have eased the situation. The haste of Cowden, who was grimly bent on catching the northbound train due in an hour's time to pass a town ten miles away; the undisturbed tranquillity of the countryman beside him, who had left his work to drive the stranger from one town to the other; the old uag, ambling along, insensible to all urgings—made up a combination not without the elements of humor, but Cowden was essentially a serious-minded young man.

The business which brought him South on a flying trip dispatched to his satisfaction, he felt obliged to get back to the firm immediately with his report, and to work again. It was always work with Cowden. His father, now dead some years, had often remarked with pride that there was no foolishness about Henry. His young sister, from her feminine standpoint, declared with indignation that he was the only man she ever knew who could bury himself in a lot of dry books, poor things, had never been of more interest to him than so many playful kittens.

Jogging along through the dust and heat, Cowden, in the midst of his discomfort, became gradually conscious of an exceeding thirst. He knew they had no time to spare and, moistening his dry lips, braced himself to bear his sufferings like a man; but presently the sight of a farmhouse near by tempted him beyond endurance.

"My friend," he said, "I am dead for a drink of water. Do you suppose I could get one there?"

"Yep," said Jake; "somebody'll be around; but don't furgit," he admonished as Cowden hurried off, "don't furgit that you ain't got no time to spare if you ketch that train."

Cowden climbed the hill on a run, coming at a turn in the lane upon the house, which he found surrounded by a garden bright with old-fashioned flowers. The veranda was covered with fragrant honeysuckle, and he became aware at once that somebody was sitting behind the vines. A steady thud and splash reached his ears, and coming nearer he saw a girl in a blue print gown at a churn. On seeing him she sprang to her feet and came to the steps. The sleeves of her dress, which was fresh and spotless, were rolled above the elbows, revealing a pair of round white arms. A large apron was tied snugly about her slim waist. A pair of very kind bright eyes looked straight into his, seeming both to question and sympathize with him in the stress of the moment, while her cheeks grew pink. Piled high above a smooth and innocent brow of milky whiteness, her ruddy hair gleamed like a coronet. Her nose, Cowden could never quite recall afterward, except that it was small and dear; but the mouth, so sensitive and sweet, smiling nervously one moment to change to a demure gravity the next—he never forgot her mouth.

"I BEG your pardou," he gasped, removing his hat and unconsciously staring at the vision before him, "but could you give me a glass of water? I am in a great hurry, and if you would be so kind—"

"Water!" she exclaimed pleasantly. "Of course. I shall be back in a moment." She turned away and with a little run disappeared in the house, returning in a twinkling, a tumbler of sparkling water in one hand and one of milk in the other.

"I brought some milk too," she laughed breathlessly. "Which will you have?"

But for answer he only reached for the water, raising it eagerly to his lips.

The girl watched him smilingly as he drained the glass and returned it with a deep breath of satisfaction and a word of thanks.

"You were thirsty!" she exclaimed. "Some more?" "No, thank you," said Cowden beginning to move away. "I wish I might," he replied, "but I must catch a train. I haven't a moment." But he stood quite still and looked at her. She made a picture for a man to carry in his heart for many a day, standing in the sunlight. A kind of good comradeship beamed from her clear blue eyes, and there was a hint of friendliness, sympathy, and a quick intelligence in the humorous little smile which curved her lips—a sweet and wholesome woman if one ever lived! In a small hand, half extended, she held the glass of milk invitingly.

"I must hurry," faltered Cowden as he moved away. "You are very kind. Thank you a thousand times." Then he repeated like an imbecile, "I have to hurry." By this time he had reached the turn of the lane, where he paused and looked back. She stood as he had left her, sweetly smiling. Lifting his hat again, he ran rapidly down the hill.

"By George," he said to himself, "what a pretty girl! And I had to rush off like a beast." He groaned aloud. "If I only had a little time or a decent horse!"

He climbed into the buggy like a man in a dream. "Well," said Jake, "took you some time. Did you get it?"

"What?" asked Cowden absently.

The other stared.

"Why, the water."

"The water! Oh, yes, yes. Certainly I got the water." They jogged along in silence for a while; then, "Who lives in that house?" asked Cowden with elaborate carelessness.

"Who? Back there? Old Major Townley." Jake spat with deliberation and exactness. "Who'd you see?"

"A young lady gave me the water."

"Umph-hump! That was Sairy. She lives there with her pa. A good looking, wasn't she?"

Cowden stiffened.

"She was a very handsome young woman."

"That was Sairy. They don't none of them beat her for looks. She's well disposed too."

Well disposed! Heavenly kind, Cowden called it.

"Didn't see her pa, did you?"

"No!"

Jake chuckled, and then shook his head gravely.

"I reckon Sairy has a pretty hard time. Old Major used to own all this land around hyar, but run it through. They got some swell kin, but they don't none of 'em bother with the Major. Sairy takes care of her pa. The old man's pretty cranky. Git-up!"

What an infernal shame, and what a sweet woman she was! "If I were ever to marry," thought Cowden.



"Well," she said softly, "will you have milk—or water?"

"I should like just such a wife." He longed to know more of her, but could not bring himself to question the countryman. How extremely sensible, for instance, it would be to ask, say, if she were engaged! He smiled grimly and was silent.

To his amazement the old uag proved to have staying qualities, and though she never altered her shambling gait, or perhaps because of that fact, Cowden was enabled to swing onto the last sleeper just as the train was pulling out. He set to work at once studying the notes of an important case, but all the while a blue-eyed girl thrust herself distractingly before his eyes. Later, when snugly in his berth, he found himself repeating, "Sarah! Sarah Townley! I shall come back for her—that is, if I ever marry."

The next day he was home again, and his flying trip South seemed like a dream. Serious work, on which he focused his every mental faculty, absorbed his time and thought for several days. Occasionally, though, like a rift of sunshine or a burst of sweet music, there would come the thought of the cottage on the hill far away where lived the sweetest little woman in the world. After a while it all became unreal, somehow, a pleasant thing to think of in idle moments, like an air castle one might build for the pleasure of it and not because it might ever come true. At last weightier matters called for his every thought. He was making wonderful strides in his profession. His ambition beckoned him on like a beacon light, and in its pursuit he was entirely satisfied.

Weeks and then months went by and he would not think of Sarah Townley. Finally he forgot her.

It was ten years after that Henry Cowden, sitting one day at his desk in his private office, gazed idly and moodily at the sunlight which streamed in at the west window. His hair had grown gray on the temples, and there was about him the calm of one whose part it has often been to wring victory from defeat. He was, in fact, as the world agreed, a successful man.

But for weeks past, now, he had felt restless and dissatisfied, and found it hard to concentrate his mind upon his work, which failed to interest him. Though never introspective, he had suddenly begun to think of himself as a being with needs and emotions rather than a kind of intellectual machine to be brought to highest perfection of workmanship. His mother had died some years before, and his young sister having married abroad, the old home was empty, with boards barring the doors and windows. Having reached the longed-for heights, somehow to-day he found them cold and barren.

"After all," he reflected, "of what good is success when there is no one but yourself? Is it worth while?" He thought of his connections and acquaintances almost without number. "Yet none of them really care a rap for me; and that is not the worst of it," he thought with unconscious pathos, "there is no one for me to care for. I want something and don't know what it is," and he sighed deeply. "I suppose I am tired out and need to get away from this hot place, but I can't think of anywhere I care to go."

AND it was then that a strange thing happened. As Cowden gazed unhappily and with unseeing eyes through the sunny window, suddenly a vision came to him through the midst of the past. In a flash there quickened from the depths of memory a scene long forgotten. "Sarah," he heard himself saying, "Sarah Townley!" A sweet face smiled at him across the years; a slender girl stood on the vine-embowered veranda and offered him a glass of milk.

For Cowden the door of his mind had opened to let in a shaft of light. On the instant his heart was the heart of a boy. Life was worth living after all. He knew what he wanted!

When a day or so later he found himself on the train, and actually on the way South, he was not conscious that there was anything remarkable in his action. It was his nature to go straight after what he desired, taking the shortest cut, and now he knew he wished to woo and win Sarah Townley as soon as possible. Perhaps she was already married, though the cranky old father might deter a good many men.

There was the chance, too, that the old man had died and that she had been forced to seek the protection of that unworthy kin of whom Jake had spoken.

Then there was the chance, though he found her still living in the same old place and still unmarried, that she would have none of him. This really troubled him more than anything.

Yes, he fully realized that the chances were against him. Only were she to remember him after all these years, would he feel encouraged. Ten years it was.

Arriving at the little town, he ordered a horse, and started out at once over the old country road. His was a very sober face as he rode thoughtfully along. If only she remembered him!

The sun was still shining, but the cool of the evening had fallen on the land when Cowden reached the lane

and, dismounting, tied his horse to a tree. He went slowly up the hill, but his heart beat as fast as it had long ago when he had to run. His thoughts seemed to frame themselves in the phrase—"If she remembers!"

She was sitting on the steps, gazing thoughtfully over the fields. Her sewing had dropped from her fingers, and lay on her lap where her hands rested idly upon it. To Cowden she seemed unchanged, but a woman's keener eyes would have seen a difference—the hair not so bright as of old; the cheeks less rosy; a pathetic droop to the corners of the mouth; a tired look in the blue eyes, once so merry and bright. But it was she, the woman he wanted, there in the flesh, just as sweet and dear as ever. If only she remembered!

As he came near she turned and saw him, and rose to her feet with the politely inquiring glance of one who greets a stranger at the door. Hat in hand he paused and tried to speak. But for once in his life words failed him. He stood looking at her intently and beseechingly, so that she was stirred by a faint wonder, and answering his look with the frank and kindly glance of old, her eyes slowly widened, and she drew a deep breath. Thus they stood for a moment and then she smiled.

"Well," she said softly, "well, will you have milk—or water?"

Cowden dropped to the step and his heart sang a song of thanksgiving.

"Both!" he said with an answering smile, "both—and I am not in a bit of a hurry."

Marketing Your Live Stock

[CONTINUED FROM PAGE 3]

sells higher than a mixed lot. As a rule, heavy hogs sell higher than others through the winter packing season, and lightweights bring top prices in summer. In these days, when stock hogs are being handled out of stock hog plants located close around the central markets, at which plants pigs are immunized, it is possible to buy a carload or more of even-sized shots, all one color, either reds, blacks, or whites. This sort of a drove of hogs, well fattened, is almost sure to bring the top price, and often brings 5 or 10 cents more than what would have been the top except for them.

Because a few of the States are preparing to permit shipments of stock hogs out of public markets, it may be possible soon to double-treat pigs with anti-hog-cholera serum and virus, dip them, and ship them out of the public yards within a few hours. Stock hogs will be handled out of public markets before a great while with only slightly less freedom than are stock cattle and feeders. In view of the big profits hog feeders are making at present prices, and the apparent security of the business for some time into the future, the stimulation that will affect the hog-feeding business by the proposed change is hard to calculate.

Apropos of the present high range of prices, a friend of the writer recently showed him an account of sales, yellow with age, dated February 3, 1891, a little more than twenty-five years ago, which recorded the sale of 64 hogs weighing 12,060 pounds, an average of 188 pounds each, at \$3.30 a hundred pounds, net proceeds of the carload, \$361.64. Prices last winter were considered very low, but were still twice as high as that, and at the present time are three times as high as twenty-five years ago last winter. Stock cars are larger also, and the net proceeds of a car of hogs now frequently runs up to \$1,800.

The proportion of cattle handled at public stockyards which are reshipped to country points for feeding or grazing is large. Last year at Kansas City it was 46 per cent of all the cattle received, and footed up 920,000 head. Yard traders buy most of these cattle out of first hands, shape them up into even lots as to size and breeding and flesh, and sell them to go back to the country.

Sometimes an experienced feeder or grazer thinks he can do better buying cattle on the yards for himself than the commission buyer can do for him. Generally he is mistaken, for the commission buyer is on the yards regularly every day, and is familiar with the angles of the trade.

A country feeder who wanted to buy some cattle went out into the cattle yards to look around. He saw a trader buy a pen of 60 head of cattle at \$7.35 a hundred pounds. He said to himself, "I'm posted." He looked closely at the trader and at the cattle, and a couple of hours later, down in the traders' division, he located the trader and the cattle.

"How much for these cattle?" he said. "Seven and three quarters," answered the trader.

"How many are there?"

"Sixty head."

Sure, the count tallied.

"I'll give you \$7.35 for them," replied the feeder, feeling safe.

"All right; I'll weigh them to you," said the trader.

Now the trader has taken out 12 steers from the original drove, worth \$8 a hundred pounds, and put them in with others of the same class, and had put in 12 steers worth about \$7.15, thereby cheapening the drove 15 cents a hundred pounds, but the country feeder did not detect it. Commission buyers have told me that they find it a rule that stockmen from the country, no matter how well they know cattle, cannot see all the individual cattle in a pen at the stockyards. They look at the drove of cattle as a whole, but it requires regular daily practice to be able to see every one of the 40 to 60 head of cattle in a pen.

Selling live stock on the public market, where every buyer must act under the spur of competition, is the best method in disposing of live stock, for both buyer and seller, yet devised. At the central market the man with cattle, hogs, or sheep to sell meets the man who is looking for his class of stock. The buyer is assured of ample variety from which to select. The public market means a cash market, where a stockman may convert live stock into money any market day of the year he wants to sell. It is to his interest to study the requirements of the buyers on the market, and to strive to meet those requirements.

Unusual conditions may develop a high market spot any time, as for example the present time. The writer asked cattle, hog, and sheep buyers at what seasons the normal high time of the year is in each class.

"A few choice spring lambs bring a big

premium the week before Easter, and fed winter lambs usually sell higher in April and up to the end of the season, for them, than earlier, because they become scarce then," said the sheep buyer.

"Spring and fall are the high times on hogs, June and November usually the low points, because of light receipts at the markets in the spring and fall, and heavy in summer and early winter," said the hog buyer.

"Butcher cattle sell high in the spring, because packers are trying to get away from more expensive steers then. Corn-fed beef steers usually sell highest from July to September, because finished steers are scarce those months, with another high point early in December for Christmas beefs," said the cattle buyer.

How Boys Make Money

By Hiram H. Shepard

MONEY is a good thing if made honestly and spent wisely. It is much better to make one's own money than to ask for it, or do without.

Work and play are only relative terms. Work becomes play when we love work and enter into it with our whole hearts. Some men and women play all their lives because they are in love with their work and enjoy fully every moment of productive activity. They have a royally good time with their sleeves rolled up, while others in the same occupations consider their work drudgery. And the time will come when country-school children will learn in school how to grow pigs and calves, lambs and colts, and chickens and pigeons, as well as vegetables and flowers.

But the nice thing about gardening and farming for boys at home is that they can make some money for themselves while they are learning well these important things of life.

Last spring a year ago a ten-year-old neighbor boy was given 10 cents by his grandmother. He purchased a packet of good cucumber seed with his money and grew a nice patch of cucumbers for the local village market. His crop of cucumbers brought him a little over \$6 in money, all of which his mother allowed him to keep and spend as he pleased.

With \$1 of his money this boy purchased a few little things for himself, and with the other \$5 he purchased a ewe lamb. By this spring his ewe lamb had grown into a mature mother sheep, and she gave birth to twin lambs. So now the boy has three sheep from his investment. The mother sheep is now worth \$10, and the lambs are worth \$5 each, making a total value of \$20 he has earned with his 10 cents in a year and a half. Besides, he sold the wool this spring from the mother sheep for \$2.45, which he has placed in the savings bank as the beginning of a bank account of his own.

This boy is now eleven years old. You ought to see him and hear him talk about his sheep and lambs. He has stacks of fun watching his lambs play in the hill pasture, and he is learning many valuable things about their nature and of animals in general. He is learning the live-stock business in the right way while he is young; he is making money as he learns.

Another neighbor boy had a stand of bees given to him a few years ago. At once he began to read about bees to learn how to handle his colony. He was successful from the start. New swarms came off in due time. He did his own carpenter work and made new stands to house the new colonies. He learned all about queens, supers, and the right way to handle and market surplus honey. Now he makes enough money each year from his bees to purchase his own clothing, books, and other things he needs, and last summer he purchased a fine bicycle with surplus earnings from his bee colonies. His parents allow him to keep and



spend every dollar made from his bees. And, besides his bees, this boy has learned the trick of growing good celery.

EDITOR'S NOTE: In the next issue Mr. Shepard will tell how girls can make money.

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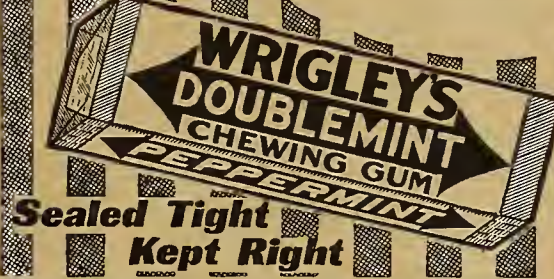
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Knox Strawberry Bavarian Cream

$\frac{1}{2}$ envelope Knox Sparkling Gelatine.
1 tablespoon lemon juice, $\frac{1}{4}$ cup cold water.
 $\frac{1}{2}$ cup sugar, 1 cup strawberry juice and pulp.
 $\frac{1}{2}$ cups heavy cream, beaten until stiff.

Soak gelatine in cold water five minutes, and dissolve by standing cup containing mixture in hot water. Strain into strawberry juice mixed with lemon juice. Add sugar, and when sugar is dissolved set bowl containing mixture in pan of ice water and stir until mixture begins to thicken; then fold in cream. Turn into wet mold lined with strawberries cut in halves, and chill. Garnish with fruit, selected strawberries and leaves. A delicious cream may also be made with canned strawberries.

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Housewife's Club

How Dusty is Dust?

By Alice W. Fletcher

THE very best protection against air-carried bacteria, such as tuberculosis germs, is fresh air; the next best is sunshine. It is that air which is breathed and rebreathed by human beings which is not pure. This bit of knowledge the intelligent home-maker will apply in her weekly cleaning. She will remember that the first requisite for healthful cleanliness is plenty of fresh air; the second is the elimination of dust. To obtain the former she will open the windows; for the latter, she may use a vacuum cleaner. If she can't afford that, she will sweep with dampened paper, oiled sawdust, salt, or any other of the accepted methods of keeping down the dust. She will remember, also, that it requires four or five hours for all the dust particles in the room to settle. Knowing this, she will not attempt to dust the room fifteen minutes after she has swept it, but she will sweep several rooms and then begin her dusting with the first one. She will try to allow an hour and a half or two hours at least between these two operations. And when she does dust she will use an oiled or dampened cloth which will gather up, rather than scatter, the little particles of dust. Of course, it will not be necessary to dust plush or velvet upholstered furniture or heavy hangings. If she has any of these, she will have removed or covered them before she began to sweep.

Recipes

Marshmallow Combination Dessert—Take one 10-cent package of marshmallows, cutting each piece in four, one cupful of apples, two oranges, four bananas, sliced, one-half cupful of chopped walnuts, one cupful of cream, whipped. Mix apples, oranges, bananas, walnuts, and marshmallows together and heap whipped cream on top. This is delicious.

Mrs. W. A. S., Illinois.

Dropped Ginger Cakes—One cupful of sugar, one heaping cupful of lard, three eggs, one cupful of New Orleans or sorghum molasses, one small tablespoonful of ginger, one level tablespoonful of soda dissolved in not quite one cupful of boiling water, five cupfuls of sifted flour. Add a little salt and drop about a tablespoonful to a place in a bread pan and bake in a hot oven. This makes several dozen.

L. Z. H., Ohio.

Potato Chips—Select medium-sized potatoes, wash, peel, and wipe dry, and slice thin on a slaw cutter. Then place in rows on a tea towel, which has pre-

viously been spread out on the table, until the cloth is filled; spread another cloth on the top of these, and roll firmly with a rolling pin. Remove the cloth and you will find that the slices are almost as dry as paper. Drop a handful at a time in a frying pan of boiling fat, separate them with a fork so they will not stick together; fry until a light brown, or until they no longer bubble. Skim out and place in a colander to drain, then sprinkle lightly with salt. Mrs. D. R., Iowa.

May-Apple Preserves—A very common wild fruit that is delicious when preserved is the May apple. Prepare it as follows: To four parts skinned and seeded fruit use two parts sugar. Make a syrup of the sugar. Drop fruit in, and boil until clear and thick. Place in jars and seal while hot. This recipe may be varied by using stick cinnamon or slices of lemon in the preserves.

E. K., Indiana.

New Puzzles

Missing Cities

You know how it is when a man offers to go shopping for his wife—he has to match the blue ribbon and buy three yards more of narrow Valenciennes lace and get furniture covers in lavender to harmonize with the wistaria wall paper, and look for a feather that will just trim her new hat to a nicety. Don't you feel sorry for him?

Now suppose in addition to these commissions, which are perplexing enough, goodness knows, the lady gives her orders in puzzle form. What is the poor man to do?

One man who is something of a wag and had played many jokes on his wife, one day was going down-town and asked his wife if he could buy anything for her. She responded by handing him the following order, every blank in which was to be filled in with the name of some well-known city:

"Get me a — hat, or one of — braid, for not again will I wear my old — it to you and the children to look my best. We need a new — carpet, some — curtains, and — bound books for the library; some — rugs for the hall and — ones for the bathroom. Get ten yards of — flannel and five of — embroidery; two hanks of — yarn and a bottle of —. I lost the — the cupboard, so get a new one. And that reminds me, there is not a can of — baked beans in the house, and the — beans are out too. Then get some — molasses, some — pepper, and —." But her husband had gone. And the only thing that selfish man bought was a box of — cigars!

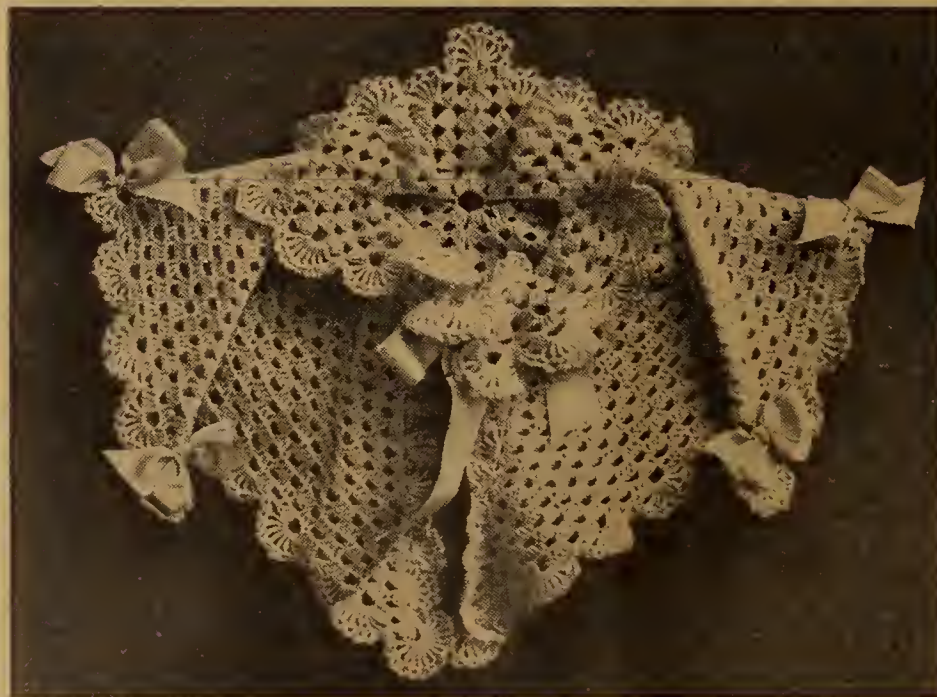
Answers to Puzzles

Puzzles Printed Last Issue

Very Much Mixed Tea

If the Chinese merchant gave his customers a square deal he must have used 30 pounds of the five-bit tea and 10 pounds of the three-bit tea in his 40 pounds of mixture which sold at six bits a pound. The cost price being 180 bits and the selling price 240 bits, he gained 33 $\frac{1}{3}$ per cent.

Baby's Nightingale



FANCY things for the little one too. This wrap will be quite useful to slip on the baby on cool mornings. For the complete directions send four cents in stamps. Address your letter to the Fancy-Work Editor, Farm and Fireside, Springfield, Ohio.

DOCTOR LEARNED

The Power of Pure Food.

Sometimes a physician who has exhausted medical skill on his own case finds that he has to look to pure food for help. Such was the experience of a Southern physician who has spent a great many years in his profession.

"The services of my life-time," he says, "have been to try to better mankind—to help them preserve health, and to regain it when lost. So it is with great pleasure I recall my first introduction to Grape-Nuts.

"I had never investigated this food until I came to use it in my own case. I had tried to heal myself and had had the services of other prominent physicians. Then I clutched at Grape-Nuts as a drowning man clutches at a straw.

"To my gratification I found that I had discovered something besides a broken reed to lean upon, for the food began to recuperate me immediately, and it helped me to such an extent that I eat anything that I desire, and do so without distress.

"I have not only found a good friend in sickness, but a most delicious dish as well. It is the most nutritious article of diet I have ever found and I notice its splendid effects more particularly at night time, for a saucer of Grape-Nuts and milk is followed by a most refreshing sleep and perfect awakening.

"My only regret is that I was so slow to look into the scientific merits of this wonderful food." Name given by Postum Co., Battle Creek, Mich.

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest.

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Farmer's Weatherometer

Actual Size:
13 inches long,
4 $\frac{1}{2}$ inches wide.



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Oxidized brass thermometer (mercury, not alcohol). Scale 5 inches long.

Each instrument guaranteed to be satisfactory.

THIS is an entirely new instrument, which combines an accurate thermometer and a reliable barometer. It accurately forecasts the weather for from fifteen to twenty-four hours in advance, and is the only low-priced instrument which has ever been placed on the market to give general satisfaction. The only condition that is necessary for the best satisfaction is that the instrument should be placed where there is a good circulation of air. The ideal place is a porch where it will receive lots of air, but at the same time is protected from the sun and extreme weather.

The weatherometer is 13 inches long by 4 $\frac{1}{2}$ inches wide. Has metal back with imitation Circassian walnut finish. Oxidized brass thermometer (mercury, not alcohol). Scale 5 inches long. It ranges from 20 degrees below to 120 degrees above. The barometer is of polished brass with large easy-reading dial. Here is an opportunity to secure a thoroughly practical instrument that has heretofore been too expensive for the average pocketbook. It should be a dollar saver too for it enables you to foretell just how much time you have before a storm. Each instrument comes carefully packed, complete directions. Sent charges prepaid.

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To Fit the Summer Needs

Patterns Which Have Been Selected for You
by Grace Margaret Gould



No. 3055—Boy's Overalls, Buttoning at Sides. 2 to 8 years. Quantity of material required for 6 years, two and one-fourth yards of twenty-seven-inch material. Pattern, ten cents

No. 3053 — Fitted Brassiere, Closed in Front. 35 to 48 bust. Quantity of material required for 36-inch bust, one-half yard of thirty-six-inch, with one and one-half yards of three and one-half inch embroidery. Price of pattern, ten cents

No. 3039—Waist in Panel Effect, Side Closing. 32 to 44 bust. Material required for 36-inch bust, two and one-half yards of thirty-six-inch material. Pattern, ten cents

No. 3040—Full Skirt with Side Insets. 22 to 34 waist. Material for 26-inch waist, three and three-fourths yards of thirty-six-inch material. Width, three and one-fourth yards. Price of pattern, ten cents

No. 2823—Child's One-Piece Dress with Yoke. 1, 2, 4, and 6 year sizes. Material for 4-year size, one and five-eighths yards of thirty-six-inch material. Pattern, ten cents

No. 3021 — Long-Shouldered Waist, Surplice Style. 34 to 40 bust. Quantity of material required for 36-inch bust, two and three-fourths yards of thirty-inch, or two and one-fourth yards of forty-inch material. Price of pattern, ten cents

No. 2821 — Child's Envelope Rompers. 6 months, 1, 2, and 4 years. Material for 2 years, one and one-half yards of thirty-six-inch material. The price of this pattern is ten cents

No. 3049—Waist with Plaited Collar and Cuffs. 36 to 44 bust. Pattern, ten cents

No. 3050 — Five-Piece Skirt with Inverted Front Panel. 26 to 34 waist. Width, three and one-fourth yards. The price of this pattern is ten cents

THE summer is a busy season with all its outdoor work and outdoor events. Nevertheless, there are odd moments when you can accomplish quite a bit of sewing if you have the right materials and patterns on hand. All of the patterns shown on this page have been selected to fit the summer everyday needs, and should therefore have special appeal at this time.



An attractive dress for summer fabrics, which can be made from patterns No. 3049-3050

THE patterns illustrated on this page can be ordered by mail. Send your order, accompanied by stamps or coin, to the following address: Pattern Department, FARM AND FIRESIDE, Springfield, Ohio. Be sure to give your full address in your letter, and state the numbers and sizes of the patterns you want clearly, and in a few days the patterns will be delivered at your door by mail.



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TALCOGRAM

Three common-sense reasons for buying Colgate's Talc Powder—Touch Sight Smell

TALCOGRAM

Use Colgate's Talc Powder—be just to yourself and fair to others.

Any One Can Write a Talcogram

It is not at all difficult to put into a few words very good reasons why you should use—for yourself and your children—the real boric powder

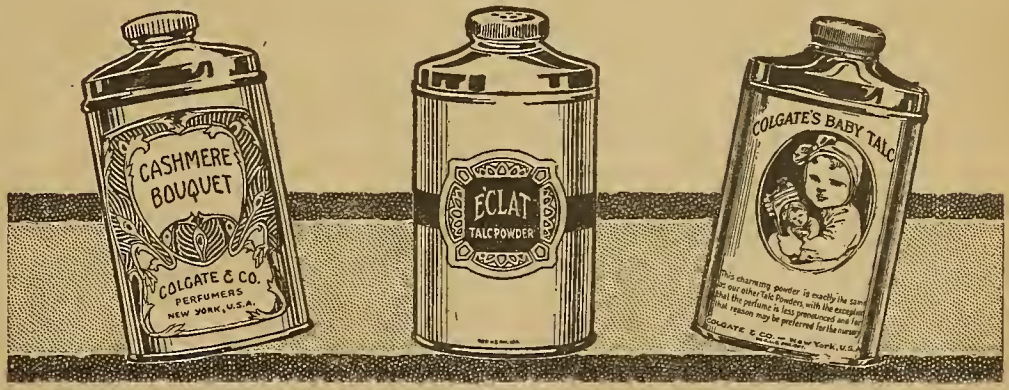
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Write a few Talcograms of 12 words each, including the words "Colgate's Talc Powder," and mail them to us. We will send you one trial size of Colgate's Talc free—and your contribution may be printed in some of our advertising.

As you write remember that Colgate's has just the right amount of boric acid (that mild yet efficient antiseptic) and is soothing and comforting to chafed or sunburned skins. Offers a wide choice in perfumes to suit all preferences—11 varieties, including Tinted and Unscented.

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What Would We Do Without Sugar?



We are so used to sugar that we are likely to forget to give it its properly important place. Right now if somebody asked you what sugar was good for you'd probably say—"Oh! to put in coffee and tea and for making candies and desserts." That's it—we all think of sugar as a sweetener and overlook its value as a food.

The chemists classify sugar as a hydrocarbon—that name may or may not be interesting to us, but what is interesting is their statement that it has, as a hydrocarbon, equal food value with the starchy foods and by digestion largely adds to the fatty tissues of the body.

Why do we eat sugar anyway? Your first answer might be: "Because it is sweet and tastes good." Of itself the answer would be correct, but the more important fact is that the body craves sugar because it needs it. And when the body craves something it gives us an appetite for it. So primarily that's why we like sugar and things made with sugar and not just because they are sweet.

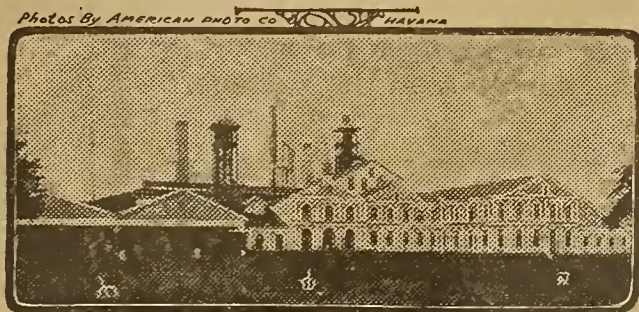
In view of the fact that sugar has gone up so tremendously of late these facts



are interesting because we find that instead of the luxury sugar having gone up it is the FOOD sugar that has raised its price. Yet—even though the price is up we have to have our sweet food just the same.

Certainly the makers of that delicious beverage Coca-Cola must have discovered that sugar is up, because one of the principal ingredients in making Coca-Cola syrup is fine cane sugar. Think of it!—they use an average of 80 tons of sugar a day—about 4 carloads. But unlike many manufacturers that company has itself borne the raise and so you and I pay just the same today for our bottle or glass of Coca-Cola that we've always paid. Incidentally, this phase of the situation is a good reminder

of the benefits one gets from drinking a beverage as pure and good as Coca-Cola. Not only do we please our palates and derive wholesome refreshment from the drink but we also give our systems that bit of sugar sweetness that they crave and which is necessary to health and tissues. Is it any wonder then that Coca-Cola is so popular and so universally drunk that it has been called "the drink the nation drinks"?



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ARE YOU ONE OF THEM?

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"BILLY" SUNDAY

THE MAN AND HIS MESSAGE

With his own words, which have won thousands to Christ

A Book for Every Christian Home

BY

WILLIAM T. ELLIS, LL. D., Author of "Men and Missions"



GO TO the lowest dive in New York's "Tenderloin" or to San Francisco's "Barbary Coast" and mention the name of "Billy" Sunday and everybody will recognize it. Stand before a session of the Philosophical Society and say "Billy" Sunday and every one of the learned savants present will be able to talk about the man, even though few of them know who won last season's baseball championship, or who is the world's champion pugilist. "Billy" Sunday is without doubt one of the greatest influences for good in the world to-day. We may criticize his methods, his language, his theology, but the fact still remains that this man of God has reached down into the depths and brought over a quarter of a million men, women and children to Jesus Christ. He harnesses the common words of the street to the chariot of Divine Truth, and in fresh, vigorous, gripping style he makes his message unmistakable.

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The Sunday evangelistic meetings are more democratic than a circus. They bring all sorts and conditions of people together, on a common plane, and for a common purpose. His appeal is to the great mass of people, the high and low, the rich and the poor, the drunkard, the criminal, the thug—all meet in the Sunday tabernacle on a common footing, and to this gathering he preaches the Gospel in vigorous, homely phrases that sear and blister their way to the understanding of even the most calloused hearer.



"You Old Skeptic, We Are Counting Time on You"

Preaches Religion in Homely Phrases

"Billy" Sunday says, "What we need is a good old-time kind of a revival that will cause you to love your neighbors and quit talking about them. Christianity means a lot more than church membership. Many an old skinflint is not fit for the balm of Gilead until you give him a fly blister and get after him with a curry comb."



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His Earnestness Cannot be Denied

"Billy" Sunday is earnest. There is nothing abnormal or hysterical about him. The quality of simplicity is a great part of his strength. He stands for the elemental things. That men should be decent and fair to one another and to Christ is the plea running through all his utterances. "Be a man" is the undertone of every chapter in his book.



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His Barbed Truths Penetrate and Stick

Mr. Sunday has a gift of homely speech that barbs truth and makes it stick. His utterances are vivid. His epigrams, like his stories, are not of the hyper-polished literary type. They are of the homely Lincoln sort that people understand and remember. He can beat at their own game the spellbinder and the quack, but his object is the highest known to mankind.



"Ha! Ha! Old Devil, I've Got You Beat"

Authorized by Mr. Sunday

The book we offer you is authorized by Mr. Sunday, and contains the best parts of his wonderful message, arranged by subjects, and is published by special arrangement with him for the use of copyrighted material and photographs. The book contains 496 pages, 50 full-page and text illustrations, bound in red cloth with black stampings.

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Mr. Sunday's picturesque phraseology adds greatly to the interest of his writings. Here are a few typical sayings; the book is crowded with similar epigrams:

People say to me, "Bill, you rub the fur the wrong way." I don't. Let the cat turn round.
It isn't a good thing to have synonyms for sin. Adultery is adultery even though you call it affinity.
When you quit living like the devil I'll quit preaching that way.
The more oyster soup it takes to run a church, the faster it runs to the devil.
Going to church doesn't make a man a Christian any more than going to a garage makes him an automobile.
To see some people, you would think that to be a Christian you have to have a face so long you could eat oatmeal out of the end of a gas pipe.
Any man who can drive a hog and keep his religion will stand without hitching.

"Billy" Sunday's methods may be questioned, but no one can deny his earnestness, his sincerity, or the vast amount of good he has accomplished.

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ESTABLISHED 1877

5 cents a copy

Saturday, June 3, 1916

Western Edition



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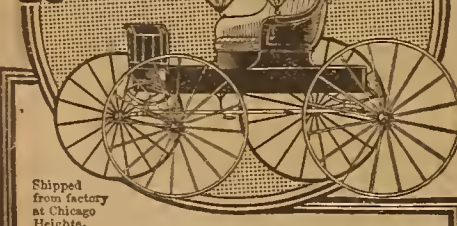
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Write to the House Most Convenient

The Editor's Letter

The Wayward Boy Who Didn't Go Wrong



EVERY promising boy is looked upon as a prize worth angling for the world over. This brand of boy is in demand because of his courage, strength, agility, dependability, and optimism. These are the qualities which make for accomplishment when the boy has secured training and equipment and buckles down to a man's job. But the question arises. Why is there such a shortage of promising boys? It seems to me the blame must mainly be attached to an overcultivation of the "wild oats" crop. There are innumerable promising boys to be found up to the age of ten or twelve years. But as the teens are entered, this obnoxious crop becomes more and more attractive, and all too many boys of early promise sow so heavily of the "wild oats" crop that the harvest overwhelms them.

The importance of smothering out this undesirable crop was brought to my attention some weeks ago by a letter I received from a Missouri woman whom I will call Mrs. Brown. Here is a paragraph from her letter:

"It occurred to me that a little of my experience in helping a boy who was taking a wrong turn might be of some value to FARM AND FIRESIDE readers. George—the boy in question—was a little slow in book studies, but he always took a keen interest in studying live things of all kinds. As a result of his scant interest in books, his school companions got to chaffing and taunting him because he could not reel off his book lessons as they did. Soon he began to 'play hooky' and dodge the truant officer. His mother was dead and his father's work kept him much away. It was then that we decided the boy must have a change or he would go wrong. I got permission from his father to place him on a farm in Illinois where he could have a chance to learn to work and be sure of good home-like care. He remained on that farm for four years. At fifteen George had become a nice, big, manly fellow with good and industrious habits and a really good working knowledge of modern farming."

Now, I call that a most encouraging report of a profitable bit of weed eradication. This boy's "wild oats" crop was already well germinated; but, taken in time, the weeds were choked out by filling his mind so full of more valuable ideas which appealed to him that there was no room for the "wild oats" to grow.

I had my turn teaching the young idea how to shoot twenty years ago. In every school taught in country and city alike I found counterparts of George—slow in books, but who did thinking for themselves.

Handwork Stimulates Brain

It was before the day of our more effective modern plan of teaching through the hands as a means of stimulating and quickening the brain. It became plain to me during my schoolmaster days why the farm boys and girls as a rule developed into more competent workers than the city-bred children. As a matter of fact, we all think to quite an extent through our hands. The hundred and one jobs the farm boy has to undertake is a constant stimulus to thought. Not only this; he has or should have definite tasks to accomplish, and any attempt to slight or avoid doing his allotted work well soon shows in the unthriftiness of poultry or other animals under his care, weedy garden and crops poorly tended, and the inferior work being done by machinery or tools with which he is working.

I want to give another paragraph from a later letter received from Mrs. Brown, which bears on a point made earlier in this letter:

"After George came home, his father was so pleased with his fine, big boy that he was not willing to let him go so far away again. We therefore decided to place an advertisement in a St. Louis paper having considerable circulation in the country. And perhaps we were not snowed under with replies! The advertisement inserted in the paper read: 'WANTED—A good place on a farm near St. Louis for a fifteen-year-old boy who has had several years' experience in working on a farm.'

"We surely were surprised at the demand for boys. Not only from near St. Louis but from States far removed the calls kept coming. All were on the lookout for good, clean, honest, industrious boys. Any number of offers included schooling privileges and a fair payment for work suitable to his age. Several wanted to make a good, promising boy a member of their family; put him through high school and agricultural college courses; then have him take charge of their home farm. In one family with grown boys of their own, who had left the farm to work in the city, they wanted to adopt a boy as a substitute for a son of their own. The admission was made that a needed lesson had been learned by them.

Need Good, Honest Boys

Their own boys had not been given proper encouragement to be satisfied with farm life. The mistake had proved a serious one. Their farm life since the children left for the city had been lonesome and disheartening. They now were in search of a promising boy who liked farm life. When the right one was found they would be willing to make him their son, with a chance later to inherit one of their farms and in the meanwhile to allow the young man a fair chance for enjoyment and recreation which their own sons had never been allowed."

I am free to say these letters from Mrs. Brown throw some new light on the subject of "boy culture" in the city and country. Unquestionably there are plenty of city boys who would make good in the country to a greater degree than will many farm-bred boys now on the farms. And the reverse is also true. It is useless to expect all farm-bred boys to be satisfied with farm life, no matter how well they may be equipped for the work. It is just as easy to understand how the city-bred boy may be naturally better suited to farm life. So many of the fathers and mothers of city children are only a generation or two removed from the farm: their offspring must in part inherit a preference for country living.

As I read Mrs. Brown's letter, I thought of the great army of street-car operators in every city of the country, at least half of whom I believe it is safe to say, came from the farm. They are now spending the best years of their lives and receiving barely enough to pay living expenses. Many of these car operators are exactly the type of men who are now so hard to find to keep the farm work moving satisfactorily. The lure of the city called them with a more attractive life and a wage which from the farm viewpoint seemed generous. But the lure has dwindled a half dozen years later when a family must be cared for, including house, light, heat, water, telephone, food and clothing—all to be provided from a wage of twenty to thirty-five cents an hour, or thereabouts.

This whole matter of benefiting city boys whose natural bent is farm work and making farm boys acquainted with the actual conditions they must face in the cities is a present problem of tremendous economic importance. The great development and improvement of farm machinery has tided the situation over thus far, but as our population increases and demand for farm products keeps pace, this question of equalizing the flow of labor from country to city and city to country will have to be undertaken in a systematic manner. Already the farm-help horizon has brightened considerably, thanks to the aid of improved machinery. Now that the farm day can be shortened and is robbed of much of its old-time life-warping toil, the farm boy is showing more disposition to weigh country advantages before deciding to forsake the farm.

Perhaps I can close this letter with no more fitting words than those used in opening it: "Every promising boy is a prize the world over." We all have a hand in the developing of this "crop," whether the boys are our own or our neighbors'.

The Editor

GRATEFUL FOR FOOD

Lived Seven Weeks on Milk.

"I was a great sufferer from stomach trouble," writes a Wis. lady. "I gave up eating meat, potatoes and sweets, and lived simply on bread and tea; finally that too had to be given up. I got so weak I could not work and I took nothing into my stomach for seven weeks but milk. I became so weak I was prostrate in bed.

"A friend advised me to try Grape-Nuts, but I was afraid to when even milk distressed me. But I tried one teaspoonful of the Grape-Nuts and finding that it agreed with me, increased the quantity. In two weeks I could walk out to the kitchen; in four weeks I walked half a block, and to-day I do my own light housekeeping.

"I know Grape-Nuts food saved my life, for my people all thought I could not live a month when I commenced using it, and were very much surprised at the change in me. I am very grateful that there is such a food to be obtained for those who have weak stomachs."

Name given by Postum Co., Battle Creek, Mich.

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest.

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Rowe Made \$18.00 in Noon Hour. Swallow says, "It is the easiest seller and the biggest money maker I ever handled." Wonderful Tone. Ex-mayor Burkhardt says, "Its tone is as good as my high-priced machine." President Clippinger of Otterbein University says, "The Tomacophone has wonderful volume and sweetness of tone." We make all styles. Prices about half as high as other makes.
Free Trial Offer Send for this machine and try it in your own home. Get the agency for your territory and let it fit you up in a handsome display room. Write at once. Territory going fast.
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MARVELOUS OFFER—30 days—one month's free trial on this finest of bicycles—the "Ranger." We will ship it to you on approval, express prepaid—without a cent deposit in advance. This offer absolutely genuine.
WRITE TODAY for our big catalog showing our full line of bicycles for men and women, boys and girls at prices never before equalled for like quality. It is a cyclopedia on bicycles, sundries and useful bicycle information. It's free.

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FARM and FIRESIDE

—PUBLISHED BY—

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Published Twice a Month

Baby Beef From Silage

Profitable Methods That Began with a July Hailstorm

By D. S. BURCH

HOW long have I made a business of feeding cattle? Well, practically all my life. I am fifty-four years old now and was born on a stock farm. Since about 1881 I have been farming myself; that makes a stretch of thirty-five years that you might call practical experience."

The man who was telling me this is W. W. Hyslop, one of the farmers in southwestern Ohio who knows how to feed silage to beef cattle and make it pay. He has also had considerable dairy experience—in fact, still has a few dairy cows as well as a flock of 35 sheep and a bunch of nearly 125 hogs.

But his main business is stock-feeding and general farming, all conducted in a businesslike way on his farm of 140 acres, valued at \$125 an acre.

"Some twenty years ago," he went on to tell, "we tried dairying, and made a success of it, as successes are usually reckoned. But as there was so much work my wife had to do in connection with that kind of farming, we felt we should change to the farming I had been taught when I was a boy. So we decided to go back to beef and hogs. We were shifting our farming to meet this change of mind when the hailstorm of July 6, 1906, came along. Not an ear of corn was left on a field of 44 acres, and we lost practically everything in the crop line.

"Raising beef cattle is not as profitable as dairying on a year-around basis, but it pays better on a six-months basis—the winter months of course. There is less work, a smaller investment, and I am not so dependent on hired help. I find that I can operate the farm cheaper the way I am doing now. I own the farm and furnish everything. My son works it with me and gets one third. Only in the summer do we need an extra hand."

To look at Mr. Hyslop's buildings and barnyards you would never suspect him to be in the stock business. His four stave silos, with an aggregate capacity of 300 tons, are all inside the barn, as are also his cattle. There are several reasons for building that way.

Labor Costs are Low

"IN THE first place," he said, "this isn't a costly barn, so the room occupied by the silos is not very valuable. The barn roof covers them all, so I save at least part of the cost of four silo roofs, as I want my silos to be covered. But the chief advantages are the convenience and greater durability of the stave silos when built inside.

"The oldest has been giving me service for twenty years now, and the newest is ten years old. The first two or three years the hoops need some tightening, but on all but the newest I haven't touched a bolt for ten years."

The silos looked as though they were good for twenty years more of service. They were home-made affairs built of two-by-sixes, tongued and grooved, with the inside of the stave an eighth of an inch narrower than the outside so as to provide for the curvature. The customary silo hoops are used on all of the silos.

A carrier running on a system of overhead tracks allows the silage to be dumped directly into any one of the half a dozen mangers. This carrier enables one man to do the feeding as quickly as two men could do it most any other way. The floor is an earth one, and as the manure collects fresh straw is added. The manure is not removed until the cattle are shipped. Thus the manure and straw become a foot thick, and as it is rather soft anything but an overhead carrier would be impractical.

For ease in handling, the straw is stored overhead, where it is put by the blower at threshing time. The straw is then thrown down through convenient openings. This method results in a large quantity of well-preserved manure. The cattle keep surprisingly clean at a minimum of labor.

The feeding space, in which there were fifty steers

at the time of my visit, measures 60x60 feet. Counting out the space occupied by the watering trough and mangers, each steer has about 60 square feet of floor space. These steers were receiving 50 pounds of corn silage and 3½ pounds of cottonseed meal a day. They were put on feed the first of last November, and were not out of the barn all winter, except to be weighed. At the time they went in the average weight was 690 pounds; on the first of March it was 900, and the fifteenth of April, just two days before shipping, they weighed about a thousand pounds apiece.

"I aim to feed all the silage they will eat," Mr.

found that difficult because of quarantine, and, besides, feeders are getting higher in price.

"Raising feeders is a new thing with us, but it is paying. Two years ago I bought 24 Shorthorn heifers at \$30 apiece. Up to the time their calves were weaned those heifers cost us two dollars a month for feed, or \$48 apiece, making a total cost of \$78. The value of the manure is figured as offsetting the labor, and I make no charge for service, as we bought our own Shorthorn sire and, when we were through with him, fattened him up and received \$10 more than the purchase price.

"Figuring the value of the breeding cows and their calves at market prices, our gross profit on raising these feeders was 17½ per cent. Allowing for interest on investment and miscellaneous expense, our net profit is just about ten per cent.

"You can tell the readers of FARM AND FIRESIDE," he said by way of caution, "that feeding silage to steers is a good deal different than feeding grain and hay. In the first place, you can't count on the hogs' getting much by following the steers. That makes some difference in the hog end of the business. Besides, you must keep the cattle at an even temperature.

Keeps Cattle in Warm Barn

YOU will notice that the foundation wall is of cement blocks, and ventilation comes from three sides. We never shut the place up tight, but neither do we let cold winds blow on the cattle. When the wind is from the west we open the east door, and when it blows from the east, then the west door is opened and the east door closed. Once or twice last winter water froze in the tank, but it was only a thin film.

"In the spring we sell all except the breeding stock, and that gives us time for general farming, hauling out the manure, and getting ready for fall feeding again."

Five head of dairy cows are kept the year around. The plan of stabling them is both simple and ingenious. Like the beef cattle, they have a covered yard which is dressed over with fresh straw every few days so there is always a clean place for the cows to lie down. Mr. Hyslop has observed that a cow will never lie down in a dirty place when a clean one is to be had.

At milking time the cows are turned into a small room in the barn, where they are fed and milked. This room is away from all barnyard odors, and as it is cool and rather dark in summer the cows may be milked in perfect comfort both to themselves and the milker. Flies rarely find their way into this milking-room. After the night's milking they are turned into another pen, and consequently are always at hand to be milked in the morning.

This plan is perhaps most practical for small-sized herds, but in the winter and early spring, especially, it permits the dairy work to be done quickly and without continually subjecting the cows to wide changes of temperature, as when they are brought from outdoors into a warm stable twice a day and then turned out again. Besides, the cows keep cleaner than when confined in stanchions all the time, and one pen may be cleaned out when the cattle are in the other.

This plan is not entirely new, however, and a very similar one has lately been suggested for the economical use of milking machines. Instead of having a large stable piped with vacuum lines for the milking machines, a small milking-room is suggested into which a few cows are brought at a time. The milking machines are to be in the small room, which makes installation simpler and less expensive. The cattle are allowed to stand untied in a suitable pen, and after they are milked are turned into another pen. Another advantage of this plan is the reduced labor as the machines need not be moved at all, and the work of handling the milk is also much less.



A silo is a way out of feeding uncertainties. In the lean years it is a bulwark, for corn will nearly always mature enough to make silage

Hyslop explained. "I let the corn mature well, and put it in the silage without any water except when we are a little late. It takes about 25 acres of corn to fill the four silos. In feeding silage I watch to see that they eat it all. If any is left I cut down the next feeding, as the cattle must not lose their appetites. I start them out with about a pound of cottonseed meal per head, and gradually increase the amount till they are getting from 3 to 3½ pounds per 1,000 pounds of weight.

"Pittsburgh, Buffalo, and our local markets offer the best prices for this sort of stock, which is classified as 'tidy cattle,' although perhaps better known as baby beef. The animals must be fat and weigh about 1,000 pounds.

"Some of these cattle," he explained, "I got from Kentucky. The others I raised myself. We bought feeders on the Chicago market at first, but have lately

Saving Hay at Its Best

When We Use a Side-Delivery Rake, Loader, and Carrier

By RUTH C. GIFFORD

FARMERS have to battle against almost everything under the sun, including the weather, and the weather battle reaches its climax during hay-harvest. Poets rave about the fragrance of the fields of new-mown hay, but to farmers hay smells far sweeter after it is safely housed.

Not the least difficulty for beginners is to decide just when grass is in best condition for cutting. On our farm we get best results by cutting clover (alsike and red) when about two thirds of the heads begin to turn brown. If cut much before that time the grass takes much longer to cure. When left until all the heads are turning brown the hay is slippery to handle and its feeding value is much less.

We also cut the mixed hay when about two thirds of the clover heads begin to show a brown color. Last of all we cut the timothy, which blooms three times while maturing. We try to mow when the third bloom is leaving it. If left much longer, timothy gets woody and loses its green color.

If a top price is expected for the hay, the grass should be cut when there is no dew on it. Then it dries more quickly and retains its green color. Hay, like everything else, is sold by its appearance. Many farmers neglect to cut and cure at the right time and then wonder why they get such a low price when the hay is sold on commission.

The ideal condition for curing grass is a good breeze and not too hot a sun. Air-curing is better than sun-curing. A calm day with a blazing hot sun cooks the hay and injures the color. We always use a tedder to aid in the air-curing. When the sun is very hot and we wish to hurry the curing, we rake the hay into windrows with the side-delivery rake, making sure there is no third swath under the windrow. In these loose windrows the sun has less and the air more chance at it, and the hay is soon dry.

For beginners, probably the hardest problem is to decide just when the hay is dry enough to haul. Even experienced haymakers make a wrong decision sometimes. Some recommend, as a safe rule, twisting a handful of hay, and if no sap can be wrung from it the hay is ready for the mow. But we like it a little drier than that. It is better to be safe than sorry.

Damp hay is likely to do almost anything, from burning the barn to molding. I dislike to say anything about thunder storms and wet hay. Everybody has had so much disheartening experience with spoiled hay that the subject is painful. Of course, the only thing to do in "catchy" weather is to make the best of a bad matter.

Use Swinging Track

WE FIND that it pays to use four light-weight horses with the hay loader. Pulling the loader and the load is too much for three horses when the load gets heavy. One of our neighbors ruined three good horses by using three instead of four on his loader. When the hay dries in the swath we use the side-delivery rake ahead of the wagon, and rake two swaths onto a third for a windrow. Where the hay is heavy it is better to have three men on the load, because it rolls up faster than two can handle it.

In a dry season, when the hay is a light crop we rake some of it into windrows before the loader starts. The rake goes all the way around the field, raking two swaths onto a third. Then it turns around and goes back raking two more swaths into the windrow it has just made. This makes a good-sized windrow and enables the loader to gather up five swaths instead of three.

Then comes the important mechanical helper, the hay carrier, in the barn. As our mows are 20 feet wide by 50 feet long and are divided into two equal parts, we fill them as separate mows of 20x25 feet. The carrier has a track 18 feet long, which extends diagonally across the mow and is fastened to the rafters. About five feet of this track extends over the driveway.

The advantage of the track is that the minute the carrier strikes the track the load is easier for the horses and the carrier can be tripped anywhere along the track. This saves work and time for men in the mow as well as lightening the labor of unloading the hay.

When one side of the mow is filled level with the leaves, the track is swung across diagonally to the other side. After both sides are thus filled the carrier is used with a permanent track running full length of the barn, and then it fills the mow to the roof. On an average we can unload a ton of hay in five forkfuls and do the work in about ten minutes.

As soon as each load is distributed in the mow we use two or three quarts of coarse salt to sprinkle over the hay. Thus treated we believe the hay has better feeding qualities and the salt seems to prevent the molding and coloring of the hay. A window in each side of the top of the barn is lowered and raised by means of a long rope and pulley from the ground floor. These two windows are kept open day and

night, except during beating rains, until the hay has cooled down to its normal condition. The draft over the hay carries off the moisture that otherwise would discolor the upper layer of hay. We also feel that there is less danger from lightning and spontaneous combustion if the barn is kept cool.

When hay is to be stored in the barn a side-delivery rake, hay loader, and power fork will sometimes save more than their cost in one season.

The Time to Cut

Keeping the Color and Nutrients

By M. ROBERTS CONOVER

HOW can I harvest my hay crop most economically and get hay of greatest feeding value and of a quality that will top the market for any I may have to sell? Haymakers hold quite varied opinions on this matter. I have given considerable study to hay-harvesting operations the result of which I believe will be of interest to FARM AND FIRESIDE readers.

The end sought in curing hay is to get rid of excess moisture with the least possible loss of nutrients and palatability while retaining the attractive color and aroma. We can get the bright, attractive color and aroma by cutting the grass early, but the most careful curing cannot give to hay the nourishing qualities which are lacking when the cutting is done too soon

area, or when new shoots at the base of the plants are starting. From these shoots come the succeeding crop. If cut too early or too late the next crop is less vigorous and the quality is injured.

Mixed clover and timothy should be cut, the first year after seeding, when the clover is at its best; the second year, when the timothy is at its best or when the timothy bloom has about one third fallen. Mixtures such as peas, vetches, and oats in combination should be cut when the grain is doughy. Cowpeas make the best fodder if cut when some of the pods are just beginning to mature. Millet is ready for harvesting when the field begins to show a yellow color.

Haymaking weather, to be ideal, should be warm with a light breeze stirring. If the weather is "catchy," by mowing late in the afternoon or evening less loss from bleaching will result should rainy weather follow. The old test of wringing hay to determine when it is ready to store is a valuable help. Most grasses and the small-stemmed legumes can be safely housed by this test if the hay is hot and dry when stored.

Heavy-stemmed crops—plants like vetch, sweet clover, and mammoth clover—should sweat out in the cock to insure against moldiness. Frequent turnings to shake out dew or water will often lessen the time of curing one half or more. Raking into windrows to complete the curing is a valuable help in holding the desired green color in the hay.

Cock-curing of hay keeps the foliage pliable and in position. Alfalfa, vetch, soy beans and, in fact, most legumes suffer much loss of leafage by raking and handling when too dry. Cocks should be made small in proportion to their height if rapid curing is desired.

Here are two methods of curing which work well under varying conditions: For heavy fodder or mixed hay, mow in the afternoon. The next day at noon rake and bunch or cock, according to weather conditions. When the dew has disappeared on the third day open the cocks. In the afternoon cock again into tight round cocks called "weather cocks." One day more is allowed for curing before storing. In catchy weather, haycaps are almost indispensable for this longer process.

The second method for curing alfalfa, clover, and the like is to mow in the morning and tedder it twice. When dry enough to rake well, rake and cock, allowing

the hay to cure in the cock two days.

In dry regions ricked hay keeps well. But where alfalfa or clover must be stored in stacks or ricked in a humid climate a grass thatch will save a great deal of loss from mold and discoloring.

In Dry Belt

Size of Ricks for Alfalfa

By C. BOLLES

IT ISN'T a question of "How do you put up your alfalfa?" but rather, "How do you save the leaves?" Most farmers soon learn the best stage of growth for cutting alfalfa, but too many cut it when they get time.

When the weather is dry, with no likelihood of rain, and help is at hand, perhaps the best way to save the leaves is to follow the mower with a rake as soon as the leaves wilt and cock up right behind the rake. Where time is a factor the raking is deferred until just before there is danger of the leaves' falling. Then the windrows are bunched.

When the hay is wanted for hogs and help is scarce, we have often mowed in the morning, raked after dinner, and swept the green stuff right into the rick made in the form of a triangle about six feet on a side and built up to a point at the top like a pyramid.

After the hay is in the cock or bunch we have several ways of caring for it. Sometimes two men fork the cocks onto sweeps which get it to the stack without leaf loss. Where the fields are small or machinery isn't to be had many merely load on wagons or stack the old way.

To Stack Alfalfa

BUT where the fields are large and time is a factor, the cocks or bunches are swept into stacks with a sweep rake. Of course, the stacks will vary in size according to conditions, but one farmer who handles 90 acres three and four times a year tells me he prefers stacks 15 feet wide and 30 feet long. Eight feet from the ground he makes the stacks 18 feet across, and gradually draws in from that point upward. But generally alfalfa is stacked with straight sides.

Sometimes, if help is available, and the alfalfa is being ricked, a man is used to carry the ricks up higher. But generally when put up in ricks they are put only as high as a man can work from the ground. The alfalfa put up in the small ricks seldom opens up bright, but hogs and other stock relish it and its feeding value is fairly good.

There is generally no rain here in southern central Nebraska on the first crop, and rarely on the succeeding one, while it is being harvested. In California one crop is stacked on top of another.

Alfalfa sells here for from \$3 to \$12 a ton—average, \$8. The low value of the hay accounts for no alfalfa meal being ground here.

The cost of custom grinding is \$4 per ton. Large mills cost about \$400 for the grinding outfit alone. It is only a question of time till the alfalfa mills will be in use wherever alfalfa is grown in large quantities.

E W



This is a rapid way to stack hay. A sweep rake delivers its load to stacker, and a team (in this case to right of picture) raises and dumps it

or, what is every bit as bad, cutting the grass too late.

The most even distribution of nutriment in hay plants occurs before the seeds mature. This stage is in the early or later stage of blossoming according to the variety of the grass or fodder plant. Grain crops, such as wheat, oats, and rye, when used for hay, should be cut while the grain is soft and doughy. At this stage the nutrients are about evenly distributed in stalk, foliage, and grain.

Timothy should be cut when about three fourths of the flowers have fallen; oat grass, meadow fescue, and orchard grass as soon as the bloom appears; redtop and brome grass when in full bloom; vetch when in bloom and before the seeds have made much development; red clover and alsike clover before many heads have begun to turn brown.

Alfalfa should be cut when the bloom has appeared to the extent of one fifth or one sixth of the blooming

New Ways With Hay

Machines That Hustle the Crop Into the Barn or Stack

By B. D. STOCKWELL



This is one style of sweep rake used in connection with field stackers. It will gather hay from either swath or windrow, and saves loading it on a wagon

A NEIGHBOR of mine prides himself on being able to go out into the hayfield and do three men's work pitching hay with a fork, and I have seen him do it for about half a day at a time. But in spite of his great physical strength he has too much judgment to use it in competition with improved hay machinery.

He has a large well-equipped farm, and in hiring his help prefers a man who knows how to handle a mower, loader, or hayfork to a brawny giant whose greatest achievement is the number of fork hauls he has broken.

Hay machinery is still undergoing improvements among which the following are of more than average interest: Mowers, though still made in the standard five and six foot sizes, are also made both larger and smaller. For large ranches the eight-foot mower has proved its value. A Nebraska ranchman raising 9,900 acres of alfalfa cuts it all with nine eight-foot mowers, each drawn by two horses. This is at the rate of 1,100 acres for each mower, and the job takes about fifty-five days. One mile of travel with an eight-foot mower cuts an acre, lacking a very small fraction.

The advantage claimed for a large mower is its ability to replace two smaller mowers, thus saving the work of one man and a team. The other extreme in mowers is the one-horse three-foot size for the man who has but a small acreage or who wants a more rapid tool than a scythe for cutting small meadows, fence rows, and roadside ditches.

One manufacturer has announced a weed attachment by which the cutter bar can be carried at any height so as to clip off the tops of the weeds without mowing short growths of grass or grain. Many of the new models have the vertical-lift feature by which the cutter bar can be raised to a complete vertical position to clear obstacles. The driver can do this quickly without stopping the team or leaving his seat.

Several bunching devices are now on the market in response to the demand for a means of saving short growths of grain, clover seed, and forage crops that are too thin to rake. These bunchers, which cost about a third as much as a mower, are fastened to the cutter bar and collect the crops as it is cut. When the buncher is full it may be dumped or, if desired, the hay may be left in windrows.

Thus, when the crop is in a condition that does not require sun-drying before raking, the work of raking is dispensed with and the loss of seed or leaves reduced to a minimum. Bunchers are made in both side-delivery and rear-delivery styles. Hay is thus handled by machinery more carefully than it is ordinarily handled by hand.

The New Wagon Hay Stackers

ANOTHER means of preventing the shattering of leaves, especially in the case of clover and alfalfa, is the use of a sweep rake (also called buck rake) instead of hand-pitching. Sweep rakes are used principally when hay is stacked in the field, and they save the work of loading and unloading wagons. They consist of a series of from 12 to 15 wooden teeth six to eight feet long and about a foot apart. They are mounted on low wide-tired wheels and are drawn by two horses which walk one on each side or behind. The giant wooden prongs slide in under the hay and carry it along to the stack. The driver rides behind and his weight partly balances that of the hay.

Various devices are used for raising the teeth clear of the ground after the sweep rake is loaded, but perhaps the most successful at this time is the type of rake in which the pull of the team supplies the power. A sweep rake is most useful when used in connection with a field stacker. A good stacker is easily portable, adjustable so as to elevate to any desired height within its range, and simple in construction and operation. The principal kinds are overshot, swinging, and wagon stackers. Besides, there are the wire-cable outfits similar to the kind used in hay barns. These outfits require guy cables and, though serviceable, are rather unhandy to move about.

The wagon stackers are the newest of all of them, and are named from the fact that they are mounted and operated on an ordinary farm wagon so as to be

easily portable; otherwise it somewhat resembles an overshot stacker. One thoroughly modern swinging stacker is constructed so as to swing around in a complete circle, take up hay at different places, providing they are within its reach, lift half a ton at a time, and build two stacks without being moved. Power for operating hay stackers is furnished by a team, though some can be operated by one horse.

In hay loaders a development announced this year is a successful hinged-elevator loader. With this kind of elevator, hay is carried farther forward than by the usual type of loader, thus saving much of the hard work. In barn equipment one of the more recent developments is a four-point harpoon fork which is claimed to handle short dry hay without spilling. It is doubtful whether such a fork has much advantage over a grapple fork or hay sling, but it promises to do better work with loose hay than a single or double harpoon fork.

Big Dairy Drive

What it Means to Keepers of Cows

By CARLTON F. FISHER

A PLAN is underway to advertise dairy products through a great national campaign. In many respects the undertaking is similar to that of the California Fruit Growers' Exchange, which in ten years' time increased the consumption of oranges and lemons in the United States 71 per cent.

National campaigns for increasing the sales of special brands of canned goods, meats, baking powders, and raisins have by their success paved the way for a great dairy drive, but this particular effort is different in one respect: it is a plan of advertising an entire industry and not any particular brand of goods.

The dairy business as now operated has been continually receiving unfavorable advertising through milk strikes and other exhibitions of dissension between buyers and sellers. Dairy officials have used

the newspapers as a means of holding up to the public the case of some milk producer who watered his milk. The rivalry among breeders of pure-bred cattle for championship honors has been the cause for hostile remarks which in time reached the consumer. All these matters are well known. But lately a few progressive men who are engaged in the milk business have concluded—and very wisely—that the public at large is not deeply concerned about the details of milkmen's problems.

The public spends its money where it gets the best service and the best values. Now, when values are considered, dairy products stand high among all foods; but while dairymen have known this for a long time, they have been slow in talking it up. To-day the consumption of dairy products in the United States is something like this: Milk, less than a half glassful per person; butter, about one-twelfth of a pound; cheese, about one hundredth of a pound; ice cream, about two teaspoonfuls a day.

Campaign Will Last Three Years

THESE amounts are considered much below the quality which a person should eat if he is to be well and economically nourished, and competent advertising experts show figures to indicate that sales of dairy products may be increased something like 50 per cent. To those unfamiliar with advertising procedure the price of milk may seem to defeat the entire plan. Many city housewives to-day sincerely believe that butter and milk especially are high-priced foods. Then how in the world can she be induced to buy more when she now gets along with the very least amount she can?

The answer to this problem is twofold. In the first place, thousands of analyses have been made which show that milk and its products are cheaper foods than are most canned goods, as well as certain cuts of meats and a few vegetables. These analyses have for years been printed in scientific books, but now they are going to be brought to the attention of the public in a popular and attractive manner.

In the second place, the cost of running the milk business will be less for each sale when the volume of trade is increased. The orange growers of California have lowered the cost of selling their fruit by 50 per cent since they started advertising oranges on a large scale.

The cost of the dairy advertising campaign will be borne largely by the more important organizations which already exist. The National Dairy Council is the active body back of the movement. This is an organization officered by a few men who in the past have been influential in directing the affairs of the National Dairy Show.

The advertising fund now contemplated is to be at least \$120,000 a year for a period of three years, and the campaign is to be national in scope. The financial aid of manufacturers of dairy machinery, builders of barn equipment, the cement industry, and others who are likely to be benefited will be welcomed, but it will be impossible to reach all who are likely to derive benefit from the increased sales of dairy products.

To what extent the individual dairyman is going to be benefited is purely a matter of conjecture, but I don't see how he can lose. The chances are he will come in for a fair-sized slice of melon. But he will have to keep good cows, have clean buildings, and otherwise live up to all the good things that are to be said about the dairy business.

Besides, with the increased demand for products of the dairy, there must necessarily be a country demand for dairy stock. Heifers, milch cows, and good dairy bulls are likely to bring exceptionally good prices. Dairy feeds also will be in demand.

As usual, silage will be fed largely, and that is practically a sure crop the country over. No one will make a mistake by putting up an extra silo. The exact time the campaign is to start has not yet been set, and will depend on the results secured by the committee which has charge of soliciting the funds. Before a dollar is spent there must be at least \$10,000 a month fully subscribed for the entire period of thirty-six months.

The chances of the scheme falling through is exceedingly remote, and from a careful consideration of the whole plan and the forces back of it there is no question but what it is going to be one of the greatest benefits the dairy industry has ever received.



The vertical-lift device for mowers, as shown here, saves time in working among stumps and trees. The driver raises and lowers the cutter bar without leaving his seat

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30x3½	7.95	8.95	2.35	35x4½	16.80	18.55	4.25
31x3½	8.45	9.25	2.50	36x4½	17.10	18.95	4.35
32x3½	8.80	9.75	2.60	37x4½	17.45	19.50	4.50
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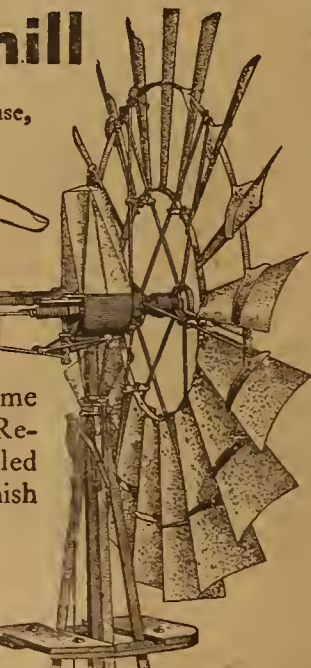
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Railroad Crisis

Wage Demands of Trainmen are Untimely

By JUDSON C. WELLIVER



WASHINGTON, D. C.,
May 22, 1916.

RAILROAD engineers, firemen, conductors, and brakemen are demanding readjustment of their working hours and pay schedules to the basis of an eight-hour day, with time and a half for overtime. It is calculated that if their demands are granted it will add about \$100,000,000 annually to the pay roll of the railroads.

There has been a decidedly different attitude of the public mind toward this demand than toward similar ones in the past. The feeling is strong that the men have threatened to tie up the country's business at a critical juncture in order to force exorbitant concessions.

These four classes of employees get high wages, and have been getting increases steadily for many years. They urge that cost of living is higher, so wages must go up with it. There is some justice in that. But in 1913 engineers the country over were getting an average of \$5.20 a day. If they need an increase, what shall be said about the section hands, who were getting an average of \$1.58 per day? Wouldn't they seem to need an increase too?

Conductors were getting an average daily wage of \$4.39. If they must have 25 or 30 per cent more in order to live, how about the telegraph operators and dispatchers, who were getting only \$2.52 per day?

There are more trackmen on the railroads than there are engineers, conductors, brakemen, and firemen. The total number of employees of the railroads in 1914 was calculated at 1,710,000. Just about one sixth of these are among the four groups now demanding a big increase of wages. This lucky one sixth have been getting the lion's share of wage consideration for many years.

They have the power to make and enforce demands because if they should walk out they could tie up the country's transportation in an hour. A week of such paralysis would see people starving in many cities. It would see business wrecked. Millions upon millions of other wage earners would be thrown out of employment. A week of that sort of chaos would bring such conditions as would require months to straighten out, after regular train service had been restored.

The railroads, as everybody knows, are unable now to handle the business offered them. Terminals are congested, long delays are experienced in deliveries, ships are not to be had to take all the export business. Suppose a case:

European Governments have taken over the control of their merchant shipping in order to make it serve war needs better. No British ship may take cargo or contract for a particular voyage without the authorization of the Board of Trade, which corresponds to our Department of Commerce. The Government is compelling the ships to do what it wants. It insists on getting the utmost results from every ship.

Suggest Extreme Measures

If, then, American railroads and business should suddenly be tied up, the Governments would stop sending ships here. They would be sent elsewhere; no risk of bootless voyages would be incurred. Ships that ought to have come to the United States would be sent away to Argentina, India, Australia, heaven knows where; and months after our railroads had resumed normal operations those ships would still be working for somebody else than us. Our grain and manufactures and meats would be left on the dock, while the ships were hauling some other country's stuff to Europe. It doesn't look good.

The railroad employees would be wise to inform themselves just how the public regards their demands for more wages for the favored groups. They would learn—for I have had no difficulty learning it, talking with public men in touch with the country's sentiments—that patience is not capable of standing much of such an imposition.

The thing looks like a hold-up, and even the men who are commonly classed as strongest supporters of labor, in Congress and the Administration, are talking of extreme measures to be adopted in case of a walkout. They are proposing

a law to forbid strikes on interstate carriers; to provide a plan of arbitration; to empower courts to issue the most sweeping sort of injunctions

against such acts, on the ground that the public interest requires it.

Not only this. If there should be a strike now, it would precipitate a sweeping Congressional inquiry into wages on the railroads. That inquiry would show a lot of facts like this:

There are about 40,000 switch tenders, crossing tenders, and watchmen on the railroads. These in 1903 were getting an average of \$1.76 per day; but in 1913 they were getting only \$1.70 per day. That is, they suffered a reduction of 6 cents per day. In that same period the wages of engineers rose from \$5.01 to \$5.20 a day; of firemen from \$2.28 to \$3.02 a day; of conductors from \$3.38 to \$4.29; of other trainmen from \$2.17 to \$2.96 a day.

There are almost as many men in this classification of crossing tenders, switch tenders, and watchmen as there are conductors. If the conductors are underpaid at \$4.29 a day, what shall be said of these others at \$1.70 a day?

The wages of trainmen have advanced 36 per cent in eleven years. If they still need a big advance, what on earth is the condition of watchmen, whose wages have fallen 4 per cent in that same period?

All these and many other related considerations are being weighed very gravely nowadays; and it requires no prophet to venture that the big, powerful organizations of the favored railroad trades will make a huge mistake if they precipitate a national calamity by forcing an industrial disaster through a strike.

Demand Meat Inquiry

It is apparent that there is also going to be some excitement over the meat industry. Representatives of the livestock interests have been in Washington in force lately, insisting that Congress open up the whole subject, with the view to determine why, since the war started, the prices of nearly everything else agricultural have been advancing while hogs and cattle have gone down.

They are charging that the big packers are responsible, and so much emphasis has been put back of the demand for a new investigation that it is generally conceded one will be ordered next session if not at the present one.

Walter L. Fisher, former Secretary of the Interior, has been here as counsel for the stock interests. With him have been such men as former Governor Stubbs of Kansas, M. M. McClure of Kansas City, head of the national organization of livestock commission dealers, and others of like importance. Their case can be summarized in these remarks of Mr. Fisher, who talked to FARM AND FIRESIDE's correspondent at length:

"Prices of live stock were lower in October, 1915, than in the same month of 1914; war demand had increased prices of all other classes of foodstuffs, except only stock. Meats, mind you, have gone up. In October last there was a drop of about \$1.25 per hundredweight in prices in two days; altogether, a drop of \$2 per hundred took place in that month, just when the season's crop was finished and being rushed to market.

"There were constant and violent fluctuations in the prices of stock which never found reflection in the prices of meat. As soon as the fall marketing of stock, at these low prices, was well advanced, the prices of meat began to be pushed up rapidly, on some qualities of bacon as much as 5 cents per pound. Why should meat go up while live stock goes down? Who gets the profits from that illogical operation?"

"We can't answer that question," continued Mr. Fisher, "and all we ask is an investigation that will shed light on it."

Some men who insist they are the farmer's friends flatly oppose the inquiry. Congressman Steele of Iowa, who is a big stock raiser and a commission merchant at Sioux City, declares against it. "That sort of thing is always hurting the farmer instead of helping him," he insisted. He thinks government regulation of stockyards is needed.

Cropping the Wet Acres

How Swampy Farms Grow Corn Instead of Wild Ducks

By HARRY M. ZIEGLER

WHAT was one of the best 70-acre lakes north-west of Des Moines, Iowa, on which to hunt wild ducks is now producing 65-bushel crops of corn. The former lake didn't do it in 1915 because much of the corn was in the roasting-ear stage when the first "killing" frost came. But the land has been doing it.

Formerly, when the owner of the lake visited it he took along duck-hunting clothing, guns, decoys, and ammunition. Now he takes a grain buyer. Hunting "blinds" fringed the edge of the lake in the old days. Now their places have been taken by hollow-tile corn-cribs and grain bins.

Drainage wrought this transformation. Draining the lake with the 1,230 other acres John A. Cavanagh of Des Moines owns near Rippey, Iowa, cost \$24,375, or an average of \$18.75 an acre. Not all of the acres needed tile, and some acres required more tile than others. This and a near-by tile factory explains the low average cost.

"Increased crops from the drained acres soon returned the money I spent for tile," said Mr. Cavanagh as we seated ourselves for a talk about his drainage experiences. "The nicest thing about a drainage investment is that the increased crops continue after the tile has paid for itself. Drainage, good tenants, manure, and commercial fertilizers have increased the rentals from my acres from \$1.87 to more than \$10 an acre.

"After I had all of the acres producing, it took them less than three years to repay the money invested in tile. The corn yield was increased from 30 to 65 bushels, and the oats yield was increased from 25 to 50 bushels. Part of this was due to added plant food; but, deducting the cost of the manure and commercial fertilizer, there were nearly enough extra crops to pay for the tile in two years.

"Drainage now presents no problems in Iowa. The question was solved by the Iowa drainage law, and following its passage the farmers were quick to tile their farms. Thousands of acres of waste wet lands were reclaimed after the drainage law was passed. This law provides that an outlet of a tile-drain system may be placed on an adjoining farm if necessary; that everyone benefited has to pay his share of the expense, whether he likes it or not; that if the persons interested in an outlet and other joint drainage systems fail to agree on the engineer and the division of costs certain persons shall act as an arbitration board.

Increases Land Values

OTH^{ER} States can help their farmers if they will follow the example of Iowa in passing laws that encourage drainage systems. Waste acres can be reclaimed, land values increased, and bigger crops harvested. With many persons tile drainage is a very much misunderstood subject."

When an Iowa farmer desires to tile-drain his farm he consults a drainage engineer. The engineer goes over the farm, making levels, getting the depth of the ditches and draws, determining where the watersheds divide naturally, taking data on the character and composition of the soil. Then he determines where the outlet should be placed to carry off the surplus water. With complete data on both the rainfall and soil composition, the engineer knows how large the tile should be and how deep it should be laid.

Maps, specifications, and costs are prepared by the engineer. If everything is satisfactory the engineer is ordered to proceed with the work. All of the work is superintended by the drainage engineer. It isn't necessary for the landowner to go near the job. All he has to do is to pay the bills.

In work done together the farmers mutually agree upon the engineer to be employed and the division of costs before the work is started. Then they have the agreement recorded in the county recorder's office, binding themselves, their heirs, and assigns to maintain their parts of the drainage system.

"The tile drains in the first drainage systems in Iowa were too small," Mr. Cavanagh explained, "and the drains were placed too shallow, and often too far

apart. The supplemental outlets needed now are giving the engineers much concern. In the pioneer days there wasn't a drainage law to help. If a neighbor didn't wish to tile his land when an outlet was needed there, the whole proposition was blocked. Then, too, many farmers that believed in drainage didn't have the money to do the work.

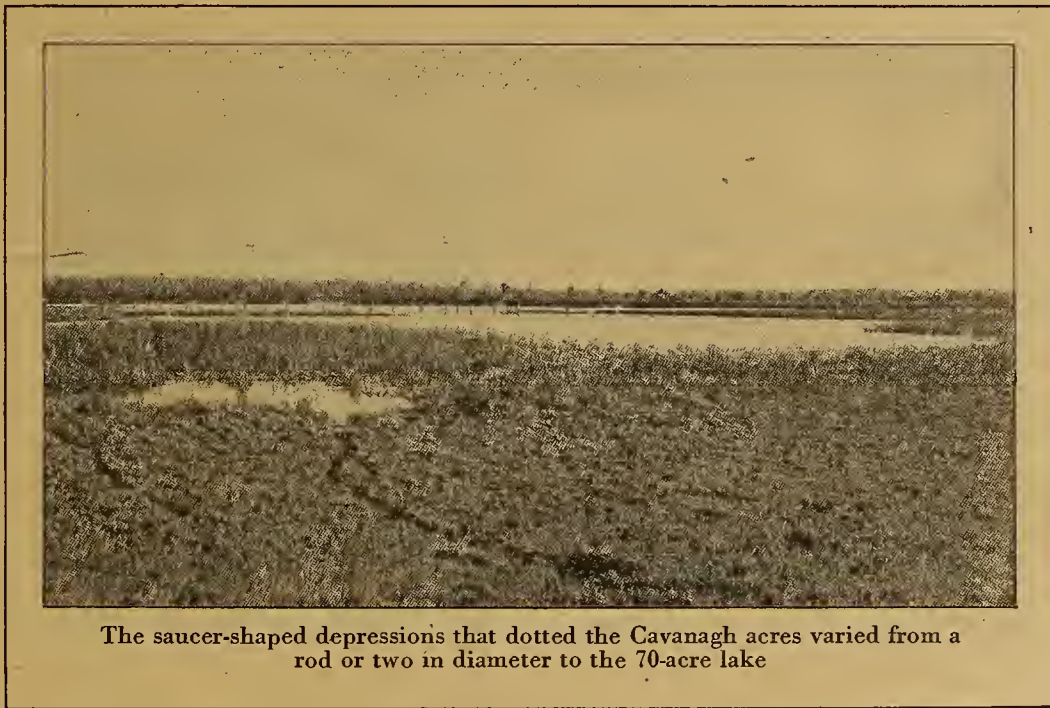
"Now many Iowa banks advertise they will lend money to a man to tile-drain his farm. The bankers know what a permanent paying investment a tile drain is, and that many times the increased crops will pay for the tile in two years."

Cut Away Trees and Brush

SAUCER-SHAPED depressions and rounded, inverted saucer-shaped swells dotted the Cavanagh acres before they were drained. The trees and brush along the edge of the lakes and swamps were cut out and carried off. The depressions varied from a rod or two in diameter to the 70-acre lake. And the swells varied as much as the depressions. The upland acres were largely sandy loams, with some clay loams. The lowlands, spotted at that time with lakes and swamps, consisted of three types—heavy humus, muck, and peat.

Because the uplands were not deep and had a sandy clay subsoil, they didn't need artificial drainage. Lying between the upland and the "wet" land was the low farm land. This had a humus soil from 3 to 4 feet deep. It needed very little artificial drainage. The wet land was found in the swamps and lakes.

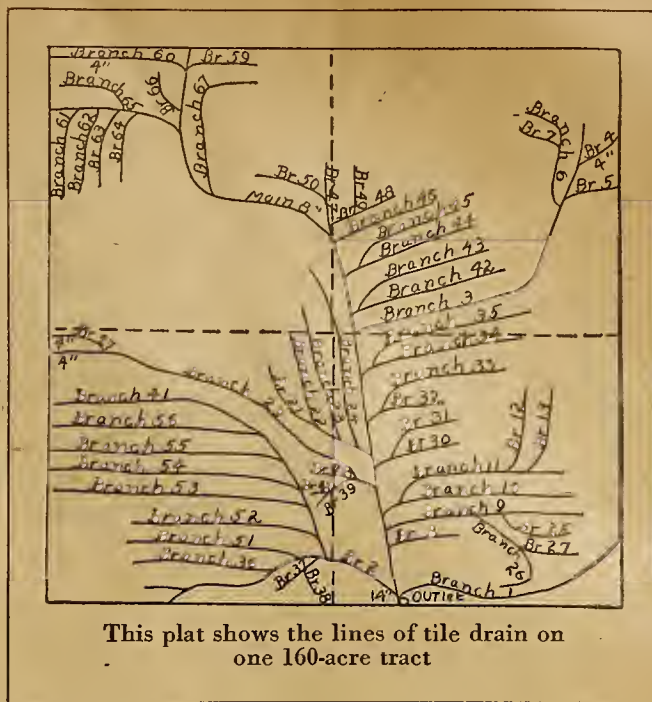
In the big lake an 8-inch layer of peat was found. Below the peat was a 2 to 6 foot stratum of heavy



The saucer-shaped depressions that dotted the Cavanagh acres varied from a rod or two in diameter to the 70-acre lake

humus soil. This heavy humus soil was decomposed peat which had become mixed with sediment washed from the uplands. The soil particles in many of the smaller swamps were so minute that the soil was nearly impervious to water.

The tile on the Cavanagh farms ranges from 4 to 18 inches in diameter. A four-inch tile is used for the branches, while the 18-inch tile is the main drain near the outlet. The main drain decreases in size for the



This plat shows the lines of tile drain on one 160-acre tract

outlet from 14 to 8 inches. This tile system in the Cavanagh soil will remove one-eighth acre-inch of water in twenty-four hours. The tile was laid at a minimum depth of four feet. The compactness of the soil determined how close to one another the branch lines of tile were placed. In the wettest part of the land, which was the lake, lines of tile were placed 100 feet apart. Catch basins were placed under fences and cross-roads to drain off the surface water. These were made by filling a ditch a foot deep with broken tile, then covering with soil.

Heavily reinforced concrete retention walls protect the ends of the outlet tiles. These walls are 12 inches thick at the base and taper to 8 inches at the top. A concrete floor 3 feet wide, 4 feet long, and 7 inches thick was built in front of and below the mouth of every outlet pipe. Wing walls were built on each side of the retention walls.

Turtles and other semi-aquatic animals and trash are kept out of the tile outlets by iron gratings. The bars in a grating can be removed. A gate is hung so it is pushed open by the outflowing water from the drain.

The work of tiling the Cavanagh farms occupied three years. The job was finished in 1908. All of the work was done under the supervision of a drainage engineer, who drew the plans, wrote the specifications, and estimated the cost of the work. All of this was done before a penny was spent on the actual drainage work.

"After my farms had been drained," continued Mr. Cavanagh, "I had soil chemists analyze the soils. I found they were deficient in potash and phosphoric acid, and that they contained enough nitrogen for 200 corn crops. These were the wet acres. The uplands had been cropped for forty years, and needed all three of these plant-food elements. The drained acres were sour and needed a little lime to sweeten them. I bought ground limestone at a cost of \$1.07 a ton delivered at Rippey. Two tons of ground limestone were applied to the acre."

Tile Drains Follow Depressions

THE tile drains of the Cavanagh land follow the depressions. The amount of tile needed varies from farm to farm. With every outlet it was necessary to continue the line across a neighbor farmer's land. Without the Iowa drainage law such an operation would have been impossible unless all of the neighbors would have looked at the proposition alike.

An untiled farm adjoins one of the Cavanagh farms. Here is a contrast in the effectiveness of tile drainage. A slough which begins on the Cavanagh farm has been tiled as far as the road. The corn on this land in 1915 was good, and didn't show any signs of having been too wet underfoot. On the other side of the road the slough presented a strip of weeds several rods wide, and the corn that grew farther back was small and uneven, and yellow because it had been choked with water.

"After you have made a trip to the farms at Rippey," Mr. Cavanagh told me as I was leaving, "you will agree with me that drainage systems are practical and paying investments."

A visit to the farms at Rippey the next day removed any doubt I might have had. There was the evidence, corn in the hollow-tile cribs; 7,000 bushels in a crib on one farm, 6,500 bushels in a crib on another farm, and so on. I not only saw the corn with my own eyes, but I felt of it and ate of it. It was real corn. Then I walked all over the field of corn growing in the old lake bed.

Much of the corn in Iowa last year was planted late because of the excessive rains in the spring. A part of the Cavanagh corn was in the roasting-ear stage when two "killing" frosts visited Iowa.

Brown spots are noticeable here and there in the old lake bed. This is the decomposing peat. Every year sees fewer of these spots.



After the lake had been drained, potash, phosphoric acid, and ground limestone were applied to the soil of the old lake bed. The result was a 65-bushel crop of corn

FARM and FIRESIDE

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June 3, 1916

The Wheat Outlook

THE Federal Crop Report of April 1st indicated that the past winter was a particularly disastrous one for winter wheat. The average condition was shown to be about ten per cent lower than the average condition at that date for the past ten years.

Moreover, the poorest conditions were reported from those regions which constitute the twilight zone between the winter wheat and the spring wheat belts. In recent years winter wheat has been traveling northward, extending its sphere of influence at the expense of the spring-sown crop. A good many farmers have had misgivings as to whether this was good business, pointing out that in favorable seasons winter wheat might be grown in some regions that in other years would make the crop almost a failure. The past winter has been a disastrous one for winter wheat grown too far north. Farmers living in this doubtful zone ought to make sure, before sowing winter wheat, of getting the hardiest and best adapted varieties.

Speeding Up Freight

TEN years ago railroad officials no doubt believed that freight was being transported fairly economically. But that was before the movement for increased efficiency spread over the country. In 1914 the average trainload was 452 tons as compared with 190 tons in 1904. Stated differently, it would have been necessary in 1904 to run 1,600,000,000 train miles to handle the same traffic that was handled in 1914 by running approximately 500,000,000 train miles. Railroad freight transportation may therefore be considered three times as efficient as it was ten years ago.

Land-Mortgage Banks

THE banking committee of the House of Representatives at Washington has perfected a bill to establish twelve land-mortgage banks—regional banks, scattered about the country, after the manner of the Federal Reserve organization. They are to make loans on land through farm loan associations, and the Federal Government is to furnish part of the capital.

It is not necessary now to go into details of the plan, for it is doubtful if Congress will act on it this session. But it should be said that this isn't the kind of rural credit system the country most needs. The rural finance problem is not to get money on good land security alone; it is to get it on personal credit too, for the purpose of developing the land. The land-mortgage measures that have been devised all miss this point. They are trying to remedy an evil that largely doesn't exist, and they make no effort to remedy one that is very serious in all parts of the country.

This country needs a system such as has been highly developed in France, Germany, Denmark, Italy, and Austria, for getting cheap money by aggregating together the personal credit and responsibility of farming communities. The plan has accomplished marvels for Euro-

pean agriculture. It would accomplish them here, especially in the South and in those parts of the West where interest rates are excessive on this kind of business. Land banks might help—would help, in some sections—but facilities for using personal credit at reasonable rates are far more needed.

Wisdom of Cotton Planters

IT SURELY seems as if everything is fish for the American farmer's nets nowadays. Who knew that Brazil was a cotton-growing and manufacturing country? It is, in a modest little way, producing about 500,000 bales a year, and having considerable milling capacity. Well, its crop has practically failed, and its manufacturers have turned up in our markets to buy cotton to keep their spindles going.

It must be said for the American cotton growers that they have realized on their opportunity better than have the cotton manufacturers. We possess pretty nearly a monopoly in the raw cotton market of the world, and yet we let more cotton go abroad to be worked up than we use at home. Our cotton growers kept their nerve after the disaster in the first

James Whitcomb Riley

A LITTLE boy once wrote to James Whitcomb Riley and said, "I tell you what, Mr. Riley, I was glad to learn you was living, because I thought all poets was dead." This was funny because at heart Mr. Riley is as spry as ever, and as lively as when a boy he used to romp barefoot across the dewy grass in the mornings. He couldn't write verses then, but he could get them "by heart," to speak at school.

James Whitcomb Riley was born in Greenfield, Hancock County, Indiana, many years ago—more than three-score—so long ago, in fact, that he came into the world in a little log cabin, weather-boarded over, lighted through little square panes in the daytime and by candles at night. He has lived all his life in the State of his birth.

Mr. Riley instinctively accepted the world as his field of labor, and the human heart as the source of his inspiration and the object of his devotion. In the depths of his soul there was love for his fellow man and adoration for his God.

Although you have known all this for a long time, we are so enthusiastic about Mr. Riley and his work that we can't help singing his praises every chance we have.

Mr. Riley not only pleases the children with his poetry but we older people like to reread the old favorites—Riley poems that many of us recited when we were children in the glad years of long ago.

Because of this love for and appreciation of Mr. Riley and his poems by our readers, Farm and Fireside will print a Riley poem in every issue during the summer and fall in addition to several that we have printed already. We have the permission of the Bobbs-Merrill Company, who hold the copyrights. The next poem will be printed in the June 17th number.



months of the war, and now they are coming into their reward. When they were advised so generally to get entirely out of cotton they paid no attention.

How many of the big, highly organized, closely concentrated industries of the country would have shown as much real wisdom as the cotton planters did in such a crisis?

The Meat Cargoes

AGRICULTURAL interests can well be pleased with the settlement by the British Government for a number of meat cargoes that were seized early in the war. They were on their way from American packers to neutral ports, and were held on the claim that they were really intended for the central empires.

After many months of delay and tedious proceedings in prize court and on appeal the British Government held that it had no right to the cargoes, and paid for them—some \$15,000,000.

This clears up an important question about our exports of foodstuffs during the rest of the war. The allied Governments have seemingly acted very fairly, and as promptly as could be expected. In fact, their whole proceeding has been based on precedents laid down by the United States during the blockade of the South in Civil War times. If anything, the United States was more rigorous in dealing with ships and cargoes suspected of trying to run the blockade than England and France have been in this war.

Healthier Live Stock

THE health of farm live stock on April 1, 1916, was better than usual according to estimates of agents of the Bureau of Crop Estimates. Animals were in better flesh, hog cholera was on the wane, and the winter mortality of cattle and sheep on the ranges as much less than the average.

The greatest benefit to the health of range stock has been the growing practice of feeding hay, especially alfalfa, during severe weather. Stock is consequently in better condition and is better able to withstand exposure.

But even this year's favorable showing leaves room for further improvement. Nearly two per cent of the horses, mules, sheep, and cattle in the United States died of disease, and an additional one per cent of cattle died of exposure. Over six and a half per cent of swine died of disease, and over five per cent of lambs died of disease or exposure.

This is a tremendous loss which can hardly be eliminated altogether. Disinfection, dipping, better shelter, and better feeding will help. Another thing of prime importance is the selection of vigorous breeding stock.

acid in reaction and stimulating, rather than healing, to wounds. Boric acid is mild and safe in its action, promotes rapid healing of wounds, can be used as a dressing powder or, dissolved in water, as a cleansing solution. Boric acid in solution makes an excellent gargle for sore mouths or a lotion for sore eyes, and as it is not at all expensive a pound box of it should form part of the domestic supplies of every family. Always remember that boric acid is non-poisonous in any ordinary quantity usually used, while bichloride of mercury and carbolic acid are exceedingly poisonous. For disinfecting and deodorizing drains, sewers, or closets the crude or unrefined carbolic acid is one of the best agents obtainable. I have used boric acid for twenty-two years in hospital and general medical practice, and it is a remedy of such general usefulness and safety that its virtues should be known to every family in the country.

DR. WILLIAM M. GREGORY, Ohio.

Farm Bureaus Work Well

DEAR EDITOR: We now read and hear a lot about farm bureaus and local rural educational movements carried on under direction of the farm bureaus. Just what is being done through these channels and what is the machinery being used to do this work?

In New York State, for example, there is a state director of farm bureaus whose office is in the State College of Agriculture at Ithaca. The farmers in the various counties can organize local farm-bureau associations at the head of which is a county farm bureau manager, and each of the county organizations has an executive committee which plans the work and frames up definite projects or plans for the purpose of putting what is being studied into practical operation.

At present there are over 30 farm bureaus in active service in 31 counties in New York State. The membership of these bureaus has now reached close to 9,000, there having been a threefold increase during the past year and a half.

Over 600 tests and demonstration meetings in barns and fields have been held under the direction of the bureaus during the past six months. The definite tests and trials made use of by these demonstration meetings include over 400 having to do with the use of lime, 300 each with vetch, alfalfa, potatoes, smut treatment, and grass-land improvement respectively.

These farm bureaus are also helping to bring about more team work in the way of forming and organizing co-operative associations. Among the accomplishments in this direction are 38 cow-testing associations, 14 breeders' associations, 17 co-operative associations, 7 potato associations, 4 poultry associations, and 6 miscellaneous, or a total of 73 associations that are actively at work in the 31 counties of the State.

JAMES WALSH, New York.

Horse-Packing Silage

DEAR EDITOR: Some pit-silo users in Kansas and Oklahoma are now adding to the capacity of their silos by tramping the silage with a horse or mule after the silo is nearly filled to ground level. By this means a surprising quantity of silage is packed in and the quality of the feed is improved.

In at least one case a donkey was used for the same purpose in an above-ground silo, the donkey being elevated with a hoist and then lowered into the silo. This plan would not work out well where more than one day was taken to fill the silo, as there would be danger of the animal's being suffocated during the night by gas generated by the fermenting silage.

HENRY PORTER, Kansas.

High Living

DEAR EDITOR: We like to live well these days, and we are paying for it. Some of our prepared breakfast foods now cost us 33½ per cent more than we paid for them before the world war began. Reckoned on a dollar-and-cents basis, we are now buying wheat in some of our prepared package foods at the rate of \$27 per bushel for the wheat, according to the figuring of Prof. E. F. Ladd, state chemist of North Dakota.

For these convenient and attractive commercialized forms of food we are willing to pay about fifty times more than our ancestors did when they prepared their own cereal foods by boiling, steaming, frying, and parching them. We want our grains prinked and puffed, and we are paying well for the prinking and the puffing.

EVAN JENKINS, North Dakota.

What Others Say

FARM AND FIRESIDE: Enclosed please find money order for 50 cents to pay my subscription. I had intended to economize, but your Poultry Number of February 12th, and the February 26th issue, giving hints of how to get rid of the double-striped bug, and several other valuable articles, made it look like poor economy.

S. S. B., Ohio.

EW

Our Letter Box

Share Rent versus Cash

DEAR EDITOR: Renting farms for a share of the crop is better for both tenant and farm owner, as shown by investigations made by the Missouri Experiment Station based on the operation of 600 rented farms.

The average Missouri tenant who operates a farm for a share of the crop makes \$138 more annually for his labor than does the cash renter, and the farm owner averages 1.3 per cent higher interest on his investment.

The total net income of the average tenant who rents all his land on share basis was \$548. The owner received 4.9 per cent on his investment.

In the case of the cash renter \$410 was received by the renter, and the owner received but 3.6 per cent on his investment.

JAMES O'CONNELL, Missouri.

The Disinfectant to Use

DEAR EDITOR: I have been getting good things out of FARM AND FIRESIDE for a great many years, and now I want to give you something of great value. An article on Household Disinfectants in a late number reminded me that the very best disinfectant known to science does not seem to be known to some people at all. I allude to boric acid, or, as some people call it, boracic acid. It is exceedingly efficient, safe, and economical. It is a white powder, and makes the best dressing for wounds that modern doctors have ever discovered. In using peroxide of hydrogen it is always necessary to remember that while it is a disinfectant it is not a healing remedy at all, as it is

Good Health Talks

By DR. DAVID E. SPAHR



AN ALL-WISE Providence has been lavish in the precautionary measures taken to preserve from injury or destruction the unborn babe during the long period of gestation.

Secure in its location, beneath the heart of the expectant mother, from

injuries resulting from blows or falls, by the bony skeleton of the mother's back, the pelvic bones, and the limbs in front, it dwells peacefully in its circular home, which is so elastically constructed that it grows and expands with the babe's growth and expansion—always of sufficient dimensions to accommodate it perfectly.

As this home is the babe's castle the outer and inner door of the entrance way is securely closed, hermetically sealed, and locked with a time lock, thus positively prohibiting the entrance of any foe without the employment of direct violence and destruction of tissue and structures that would be disastrous to the integrity of the organ and cause the death of its precious inhabitant, with possibly fatal results to the mother herself.

For the long period of three fourths of a year, 280 days in fact, the mother imparts sustenance, nourishment, strength, and life to the little being that is on her mind and heart and the subject of her thoughts night and day. Thus it insinuates itself into her life, as special care always breeds love. And at last, when the fullness of time has come and she goes down into the valley and shadow of death to give it birth, it has become a part of her real self, and she bestows upon it a mother's love.

Neuritis

1. What causes neuritis?
2. What can be done to correct the condition that caused it?
3. Is there any sedative you would advise when the pain is severe?
4. If uric acid is the cause, what will correct that condition?

Mrs. J. P. R., Massachusetts.

FIRST, injuries, strains, pressure, rheumatism, gout, infection, and occasionally toxins.

2. Simply owing to the condition that caused it.

3. Hot applications, sedative lotions, and rest of the injured part. Phenacatin and salol.

4. Drink buttermilk and alkaline spring water.

Ulcer of Stomach

I want to ask you to give me a prescription for ulcer of the stomach. I have been examined by a specialist and he says I have ulcer of the stomach.

I. E., Massachusetts.

YOU need absolute rest in bed, first of all, and take bismuth subnitrate, thirty grains three times daily.

Whooping Cough

Have a cough just like a whooping cough; cough until I vomit sometimes. Also have catarrh in my head. Have had whooping cough once.

J. C. W., Kentucky.

OCCASIONALLY people have whooping cough twice, but you may only have a bronchial catarrh, from the catarrh in your head. I would advise you to have your nose thoroughly examined by your physician.

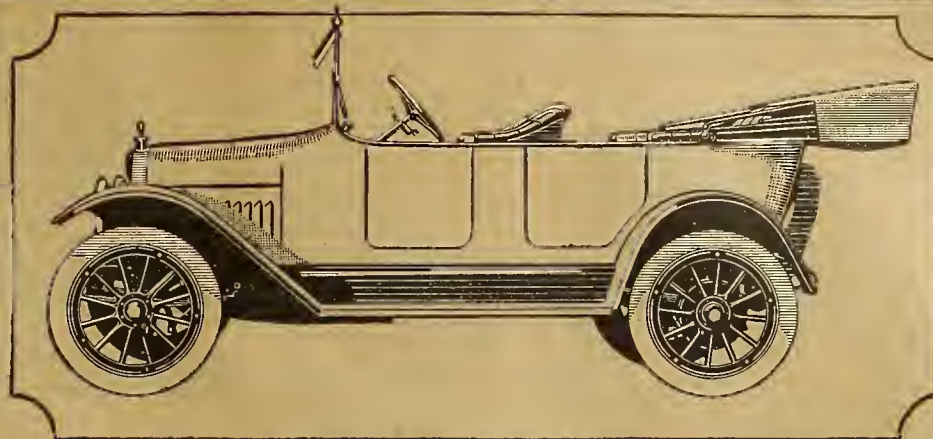
The Tobacco Habit

Is there any safe cure for the tobacco habit? I have used tobacco for thirty years. Quit for one year once, and suffered terribly with palpitation of the heart on the least exertion, as is still the case. Another effect was failure of my eyes, or lack of accommodation to focus properly. Would it be better for me to stop abruptly or to taper off gradually? Is there anything that will quiet the awful craving or palpitation for the first few weeks? What about advertised cures, are they safe and efficacious?

C. H. W., West Virginia.

I DO not know of any specific cure for the tobacco habit. If you had sufficient command of yourself so that you could reduce the amount at least two thirds, I should think it far better for you to continue. If you should conclude to quit abruptly, you would have to be supplied with the proper heart tonics and nerve medicines to tide you over. I know nothing about the advertised remedies.

E.W



The World's Champion Endurance Car

Unity

IT may have come to your notice that The Maxwell Motor Company does not base its entire advertising appeal upon the speed of a motor or the foreign lines of a body, or genuine leather upholstery, or the social distinction of its patrons—to the exclusion of every other feature of the Maxwell Car.

It is the Maxwell policy that no essential unit of the Maxwell shall dominate Maxwell Character as embodied in the car and expressed in Maxwell advertising.

The motor, the chassis, the frame, the axles, the spring suspension, the electrical equipment—all the factors in Maxwell Character—have been designed and manufactured for a single fundamental purpose—to create a harmonious and efficient unity.

All the essential Maxwell parts are designed by us and manufactured by us to contribute their full share to the achievement of the maximum comfort, convenience, safety, service and economy.

There is no one important or conspicuous feature of the Maxwell; it is just the Maxwell Motor Car—designed, manufactured, sold and kept running by the Maxwell Motor Company.

Brief Specifications—Four cylinder motor; cone clutch running in oil; unit transmission (3 speeds) bolted to engine, $\frac{3}{4}$ floating rear axle; left-hand steering, center control; 56" tread, 103" wheelbase; 30 x $3\frac{1}{2}$ " tires; weight 1,960 pounds. **Equipment**—Electric Head-lights (with dimmer) and tail-light; storage battery; electric horn; one-man mohair top with envelope and quick-adjustable storm curtains; clear vision, double-ventilating windshield; speedometer; spare tire carrier; demountable rims; pump, jack, wrenches and tools. **Service**—16 complete service stations, 54 district branches, over 2,500 dealers and agents—so arranged and organized that service can be secured anywhere within 12 hours. **Prices**—2-Passenger Roadster, \$635; 5-Passenger Touring Car, \$655. Three other body styles.

Maxwell

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Canvass the world and you will not find as big and roomy a car as the Overland Six at anywhere near so low a price, \$1145.

You, who prefer seven passenger capacity, must pay a heavy excess in price to get so much real seven passenger comfort in any other car.

And to back up its big, roomy seven passenger carrying capacity there is the powerful six cylinder Overland motor.

Take your full quota of seven big passengers and see how smoothly and easily, without a sign of effort, your powerful motor speeds away with even an overload.

Slow down to a crawl—don't touch the gear shift—keep it in high—but just touch your accelerator.

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That's genuine six cylinder pickup—a big, outstanding Overland Six fact.

And it's that big fact about this big car that makes its price, \$1145, so small in comparison.

Overland four cylinder models will "pick up" with many another six.

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Our only purpose in building a six at all is to supply with genuine Overland finality and economy that extremist demand for the luxury of bigness and lightning fast pickup.

Overland production—double that of any other builder of cars of like class—makes possible the unapproached value which you get in so big and exceptional a car at so low a price—\$1145.

Have the Overland dealer overload the six and demonstrate its comfort and lightning fast pickup.

You cannot equal it for anywhere near the price.

SIX

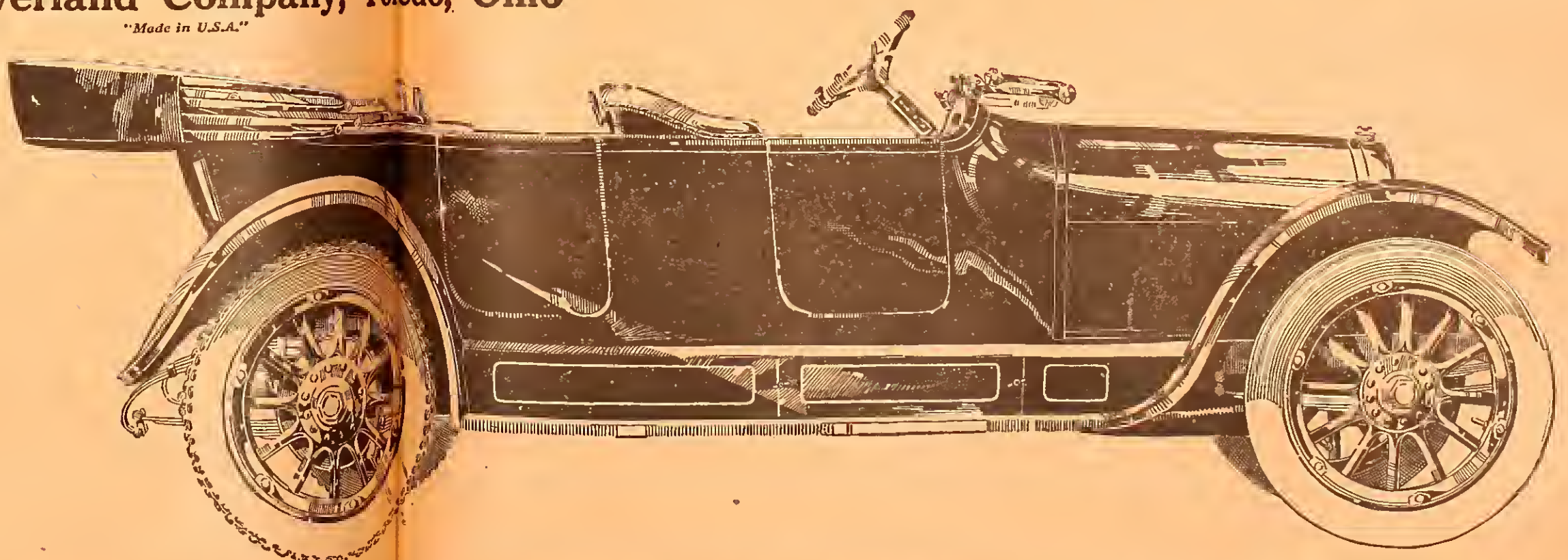
Model 86

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Absolute "rock bottom" prices have now been reached on the greatest roofing. Don't invest a cent in new roof covering, siding or ceiling for any building until you first get Edward's wonderful freight prepaid money-saving offer direct from the world's largest factory of its kind.

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outlast three or four ordinary roofs—yet they actually cost less! No painting or repairs necessary; rot—fire—weather—rust—proof. Insurance cost is less because Edwards guarantee their roof against lightning. Easy to lay—no special tools needed.

Every sheet of Edwards Galvanized Steel Shingles, Roofing, Siding, Ceiling or finish is extra heavy galvanized, piece at a time, by our exclusive Tightcote patented process after sheet has been stamped and required. Side and edges are as heavily galvanized as body of sheet. Means no weak spots to rust and corrode. Edges and nail holes can't rust.

Garage \$69.50 Up

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We make and sell direct from highest factory of kind, Edwards Reo Tightcote Steel Shingles, V-Crimped, Corrugated, Standing Seam, Painted or Galvanized Roofing at bed-rock bargain prices, saving you all "in-between" middlemen's profits. Write for Free Roofing Samples and your copy of Roofing Catalog No. 658.

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Live Stock

Cheap Pork from Runty Pigs

By Frank G. Davis

DURING the past year we raised about twenty head of hogs. Season after season we had been letting all our hogs run together in a common hog lot, regardless of their size and condition. However, last year we tried out a new plan and discovered that it paid to separate the runty pigs from their more fortunate brothers and sisters. Though we can see the wisdom of our course now, yet there are a good many farmers in our community who still cling to the former method.

It stands to reason though that if a pig is small and puny he has but very little chance of entirely overcoming this handicap if allowed to remain in a pen or lot with a bunch of others stronger and healthier than he is. For that reason we separated those that came under this class so that we might have a chance to force them.

We had sowed a piece of crimson clover near this pig lot and had secured a pretty fair stand. Each day we would cut a few sacks of green clover with a common grass hook, and it is surprising how this clover brought out these runty pigs. Early in the summer they were given milk, but later, when they had attained a fair growth, on up until October, we picked the apples from beneath our 800 young apple trees and kept them in the pig lot all the time. No grain was fed until fall, and from then on we forced them.

In this way but comparatively little grain was used, consequently the cost of the meat was kept at the minimum. In fact, the meat from these hogs cost us less than any we had ever had.

Training the Colt

By Harry Millard

TO TRAIN a horse so it will have plenty of spirit and work with a less expenditure of energy, it should be educated instead of broken. Experienced horsemen believe. When a person breaks a horse he breaks its spirit and the animal responds wholly through fear.

The education of the colt should begin when it is a few days old. To teach it to be led is the first step. On many farms draft colts are not handled until they are old enough to work.

One should work around the colt until he has gained its confidence. Then he can get it used to the harness one piece at a time. It is better to not hitch the colt to a load until it is accustomed to the bit and lines and the rest of the harness. The colt should also know the meaning of the ordinary signs, such as "Get up!" and "Whoa!" Then it should be hitched to a wagon with an old and gentle horse. Horse sense and patience are the two most important factors in successful horse-training.

The Horses' Shoulders

By Mrs. T. D. Shupe

AS HOT weather is now coming on, farmers will have trouble with their horses' shoulders galling. In case of severe gall, many farmers turn their horses out till they heal, thus causing inconvenience and expense to the owner of the horse, as he cannot well afford to lose the service of his horse at this time of the year.

We find in case of a gall it is not necessary to lose the service of the horse, but it can be worked every day and shoulders cured by using a good grade of talcum powder. When working the horse, watch shoulders closely, and every time the galled place shows signs of dampness sift talcum powder on it till it becomes dry. Keep the part of the collar pad that rests on gall thoroughly clean. By following above directions the farmer can work the horse every day, and cure the galled shoulders.

Avoid all grease and salves of every kind while working the horse, as it only tends to irritate the place.

Shade for Sheep

By Daniel Prowant

SHEEP must have shade during the summer months. I have seen flocks of sheep lying under the blistering heat of a July sun without any protection whatever. It is hardly necessary to say that flocks treated thus will pay their owners little, if any, profit. Sheep are affected more by the heat of the sun, if given no protection in hot weather, than any other farm animal, although hogs also suffer a good deal.

A good woodlot, if it is fairly open and contains something else besides underbrush for the sheep to feed on, makes excellent summer quarters for the flock. It should not be low, wet, and stagnant; if it is, the flock had better not be allowed there, as low, wet places during hot weather are very unhealthy to the breeds of sheep raised in this country. Also, such places are usually infested with countless millions of mosquitoes, and live stock are literally eaten alive. I believe if the owner who keeps stock in such places were obliged to spend a few hours a day there himself he would be more reasonable.

If there is no other way open to provide shade for the flock, take a little time and make some. A good plan is to set some short posts in the ground, just high enough so that the sheep can get under them, and make a roof over them. The size of the roof to build and the amount of posts to set depending upon the size of the flock. It should be large enough that the sheep can get in the shade without crowding. The boards forming the roof should be nailed down so that they will not be blown off. The roof may be made flat, and out of material that is too worthless for other purposes, and will pay very well for the few hours' time needed to make it.

Bean Hulls for Sheep

By D. Smith

WE FIND bean hulls a splendid feed for sheep. After threshing beans in the fall we place them in the sheep barn to mix with their feed in the winter. We find they are very fond of them, and will eat them in preference to clover hay when fed with the hay.



Experienced horsemen believe a colt should be educated instead of broken, and that its training should begin when it is a few days old

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Dairying

Milk, Pickles, and Court

By Calvin Frazer

THE canning season is an extremely hard one for milk dealers. That is the time when so many milk bottles go out of circulation and are used for putting up winter preserves. But in a Michigan town the dairymen have resolved to do more than complain.

They had one offending housewife arrested, and at the trial she pleaded guilty to keeping four milk bottles for pickles. The court imposed a fine of \$10, which is said to have had a most wholesome influence among her neighbors.

Hot Weather—Rich Cream

A GOOD cream separator will skim a 35 per cent cream practically as closely as a 25 per cent cream. The only advantage of selling cream for butter-making purposes which tests 25 per cent or less is the very small amount of mechanical loss. That is, less will stick to the can and stirring rod. But especially in warm weather, when cream pours easily and mechanical losses are low, a rich cream is best. These are the reasons:

When cream is purchased on the basis of its test, nothing whatever is paid for any part of it except the butterfat. The richer you skim it the more skim milk is kept on the farm. A rich cream—one testing from 35 to 45 per cent—requires fewer cans for hauling it in proportion to its value, keeps longer in good condition, is more quickly cooled and more conveniently hauled.

Transportation charges are less and creameries prefer a rich cream, so that after the customary starter milk is added the cream will be of about the proper richness for churning. Every cream separator has a simple adjustment—generally a cream screw—for regulating the richness of cream. Directions coming with the separator describe how the adjustment is made, or any dealer handling your make of separator will gladly give the information.

Calf-Raising Reminders

G. C. Humphrey, a Wisconsin dairy specialist, gives the following facts about building up a profit-producing dairy from home-raised calves:

Use only a good, pure-bred sire, take good care of the cows, and keep the calves "coming" right from birth.

Dry the mother off six weeks before date of calving, otherwise the calf may be weak or undersized.

Give the mother a clean, comfortable box stall a few days before calving, where she may be quiet.

Leave the calf with its mother the first two to four days, so it may get the colostrum, or "first milk."

From then until four weeks old, feed from two to five pounds of its mother's milk three times a day. After two weeks give a little choice hay.

If the calf seems unthrifty or weak, feed four times a day and give slightly less at a time.

Overfeeding is more dangerous than underfeeding.

Keep the pails clean and give milk warm, as nearly as possible the temperature of freshly drawn milk.

Beginning the fifth week, gradually substitute skim milk for the whole milk. About the eighth week increase the amount to from 6 to 10 pounds twice daily.

Do not feed the froth which rises in separator skim milk, as it is likely to cause indigestion, bloat, and scours.

A good grade of corn silage, free from coarse cobs and butts, may be fed in small amounts after the calf is six weeks old.

Feed the calves in stanchions. This keeps them from getting each other's feed, and also helps to keep them from the bad habit of sucking each other. Heifers often have their udders injured by being sucked.

A good grain mixture for young calves consists of 50 parts whole oats, 30 parts wheat bran, 10 parts corn meal, and 10 parts oil meal.

The amount given should vary from a handful for young calves to three pounds for a two-year-old heifer. Give fresh water and salt daily.

The second year keep the calves grow-

ing without a halt in order to give them their greatest growth. Pasture them if possible.

Neglect of half-grown calves will reduce their future value.

Treatment for Scours

If scours appear, mix two to four tablespoonfuls of castor oil in half a pint of milk and give to the calf.

Follow in four hours by a teaspoonful of one part salol and two parts subnitrate of bismuth. A drug store will prepare this mixture. It is a powder and can be placed on the calf's tongue or given in half a pint of milk.

In cases of scours always reduce the amount of feed until the condition of the calf improves.

Use caustic potash to prevent the growth of horns. The "buttons" from which the horns come can be felt after the calf is three to ten days old. The earlier the treatment is given the better.

Clip the hair above the "buttons" close to the skin, moisten the end of the potash stick, and rub on the skin over the point of the horns until the skin is white. One treatment is usually enough if the calf is young.

Wrap the stick of potash in paper to protect your own hands, and do not use so much moisture that the liquid will run down the calf's head. It will cause soreness. Keep the potash stick in a tightly corked bottle.

Breed the heifers at from sixteen to twenty months of age. The surest and cheapest way to secure a profitable dairy herd is to raise it.

The Silo Roof

By C. O. Reeder

THE pictures show two forms of silo roofs which are widely used. As far as the keeping qualities of the silage is concerned, a roof over a silo is unnece-



The high roof of this silo enables it to hold more silage, and even after settling, the silage is about level with top of wall

sary, and is used chiefly for two reasons—appearance and personal comfort. Snow and rain will not injure the silage, but they make the work of handling it rather disagreeable.

A silo with no roof at all, or with a roof similar to that on the tile silo, or with a patent folding roof, can be filled several feet higher than the wall, and even after it settles the silo will be full. But a silo with a low flat roof as shown in the lower picture cannot be filled as high, and when the silage settles requires refilling in order to hold its full capacity.

Different forms of silo construction have been the subject for considerable debate, but, strangely, the question of the roof has been considered more lightly than it deserves. A low flat roof costs



Silos with low roofs require refilling if they are to hold their full capacity.

somewhat less, and is more easily constructed. But considering the investment in the silo itself, a high roof or a folding roof, or no roof, represents the best farm management.

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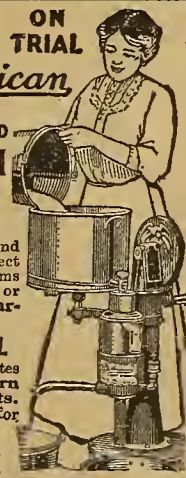
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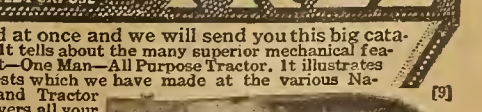
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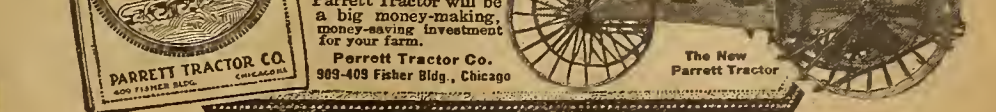
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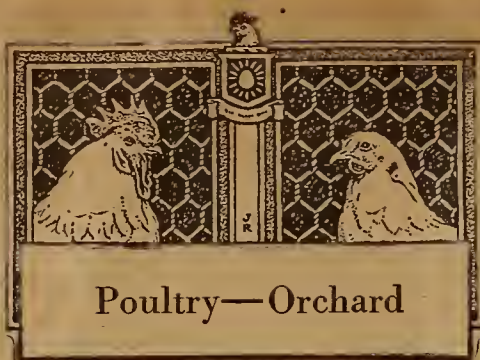
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700 Hens and a Living

By L. L. Winship

NOTWITHSTANDING the forward movement in the poultry industry, not many are yet familiar with really modern poultry farms. The old mongrels kept by Father and Grandfather are still stand-bys. Occasionally there is purchase or trade for a different rooster, it not being considered a "lucky" thing to breed from the same rooster year in and year out.

I recently visited a really modern poultry plant—Elm View Poultry Farm, located in Erie County, New York. This farm keeps on an average 700 pure-bred White Leghorns of combined American and English strain. Three hundred pullets are kept. The remainder are yearling hens, and males for breeding.

This farm is owned by Mr. G. L. Boardman, but his wife is the poultry expert. She tells me he took little interest in the poultry until she proved to him there was more money in hens than in working the land.

Mrs. Boardman has increased her flock and buildings as she has become more experienced in the ways of poultrydom. At first she kept both black Minorcas and White Leghorns, but the Leghorns gave better satisfaction, and so displaced the Minorcas.

A long house, about half open to the south and of two stories, houses the 700-egg machines. At the front of this long house is the stockroom where feed and tools are kept. Another building is used as a brooder house for the young stock. A large brooder stove, fitted with gas, keeps the youngsters comfortable. This building is divided into two parts so that the youngest are separated from the older chicks. Mrs. Boardman spends a good part of her time in this brooder building when the chicks are young.

Her hatching facilities have recently been much improved. At the start all of her young stock was purchased when only a day old, from reliable breeders. Until the spring of 1915 very little hatching was done. Last spring she had a 2,000-egg incubator installed, but this large-size machine did not prove to be what she wanted. In its place she put in several 400-egg machines from which she took a satisfactory hatch.

The Boardman farm is one of only 37 acres, so very little of the grain used is grown on the farm. Dependence is placed on compounding rations to fit local condi-



"Well hatched, well housed, and well fed," says Mr. Boardman

tions, and the needs of the birds at different times of the year. A mixture of several different grains are fed in the litter, keeping the hens working industriously until noon. A moistened mash is then fed, made up of ground grains and green cut bone. If green cut bone is not available, commercial meat scraps are substituted for it.

A variety of whole grain is fed at night, and the hens are given all they will eat. Grit and fresh water are kept before the hens at all times. Cabbages, potatoes, carrots, sprouted oats, and various other green and succulent foods are considered as essential as the grain ration when the hens are confined.

Mrs. Boardman sells but very few of the eggs in the village, except for hatching purposes. The rest are marketed in the large cities. Most of the eggs are sent to Buffalo for the sake of convenience, but in the winter, when eggs are highest, many are sent to New York and Philadelphia, where strictly fresh white eggs bring a premium.

When Mrs. Boardman was developing

her strain she bought pedigreed stock with but little regard to price. The hens in her foundation breeding pen were sired by an English male that was the son of a 260-egg hen. These hens were mated to an American-bred male whose dam had an official record of 260 eggs in a year.

White Egg Farms Club

By F. Roger Miller

THE Hamblen County White Egg Farms Club is composed of fifty commercial egg farmers of Morristown, Tennessee, these poultrymen specializing in white sterile, fancy market eggs, eggs for hatching, day-old chicks, breeding stock, and broilers.

The membership fee is \$1.50, and the miscellaneous expenses of the organization are paid by assessment based upon the volume of business. Every member uses the standard label of the club, stamping thereon his number. The farm name is also used on shipments of hatching eggs, baby chicks, and breeding stock.

Since the organization was perfected it has been found that from 15 to 30 per cent can be saved to club members by purchasing supplies in quantity.

Club members deliver their eggs in cases, labeled, numbered, and addressed

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at the local loading station, Saturday morning of each week. They are loaded at noon, and leave soon after on the poultry train operated from Morristown direct to New York. Returns from commercial shipments are received from Thursday to Saturday morning of the following week, and are distributed to club members at the weekly meeting.

It is expected that the membership limit will be raised to 100 next year, in order to meet the increasing demands for all quality products, and to increase the efficiency of the organization.

Change the Bill of Fare

By John L. Woodbury

I FIND it necessary to make a radical change of ration for little chicks hatched in warm weather from that successfully used for what may be termed cold-weather chicks. While a suitable dry mash may be kept before March and April youngsters almost from the first, I find that it can be fed but sparingly, or even entirely withheld, during the first ten days or two weeks after hatching, in the case of chicks coming out in warm weather. Before I learned this I lost hundreds of fine chicks—often as many as ten or a dozen chicks in a flock of one hundred for several nights in succession. After eating the mash for a few days the little chicks would suddenly act as if in acute pain, and the entire flock go rushing about crying loudly. This stage was followed by staggering, and at length falling over, and those worst affected soon died. I could not think it was the feed, as the same ration had worked well with preceding hatches. I did hours of work disinfecting and spraying brooders, thinking it must be the work of the red mite. But when I took away the dry mash as a last resort the trouble vanished. For late May and June hatched chicks I now use, for the first two or three weeks, flour bread crumbs, moistened with sweet milk, rolled oats, boiled egg (sparingly at first), and chick feed scattered in chaff. And I lose few chicks of even the very latest hatches.

Treat Her Like a Layer

By F. B. Deibler

THE sensible way to treat a broody hen is to treat her as a laying hen. She has temporarily stopped laying, and with proper treatment can soon be brought to laying again. The practical and humane way is to confine her in an open, airy coop in sight of the outside hens, and provide roost for her at night. While confined, give the same, or better, care in the way of food, drink and comfort as the hens outside receive.

Confining a broody hen for a day or longer in a tub of water where she must stand up continuously, or hanging her up in a sack for three days without food or water are methods that are neither humane nor economical.

Control of Apple Borers

By M. K. Kains

INFORMATION from various parts of the country indicates that young apple trees are being killed in unusual numbers by borers. The two principal kinds of borers may be fairly well controlled by giving annual attention, a few minutes to each tree. Both borers are beetles when full-grown, but are grub-like creatures while doing the damage to fruit trees.

The flat-headed apple-tree borer lays its eggs anywhere on the trunk and larger branches, and the grub completes its life in about a year. The round-headed kind lays its eggs mostly at or near the surface of the ground. This grub lives about three years and does the most harm. In each case the egg-laying is done between the middle of May and the first of July. The borers live on the sapwood till a few weeks before they are full-grown, when they burrow into the heartwood to pupate.

The only satisfactory way I have found to get rid of borers after they have once gained entrance to the tree is to cut them out with a strong pointed knife by tracing and cutting their burrows. It is not safe to cut crosswise of the grain, as the girdling effect is worse. The burrows may be easily discovered by their telltale "chips," or "castings," which often plug up their holes on the surface of the trunk. Sometimes the cutting is blamed for the killing of the trees because the borers have gained too much of a start, or have become too numerous before the work is done.

There is no sure way of preventing the attack of the flat-headed apple borers, though placing common or whale-oil soap in the tree crotches is believed to help. The attacks of the round-headed kind may be reduced, if not entirely prevented, by covering the lower parts of the trunks with wire mosquito netting to the height of say two feet. It is necessary to tie the tops of the wire around the trunk so the beetles cannot crawl inside, and also to mound up the bottoms with a few inches of earth for the same reason. A coat of whitewash or lime-sulphur sludge above the wire netting will act as a repellent. All this sounds rather costly, but what is a few cents a tree compared with the cost of dead trees killed by neglect?

Birds Shun Rattle Bags

By F. G. Heaton

ONE of the most effective plans for keeping birds from cherries and other tree and garden fruits is to take two or three two-pound manila paper bags, dip them in linseed oil to make them water-proof, place half a dozen dried peas in each, blow them up full of air, and tie up the open end. Fasten these bags in the trees, two or three to each tree, or to stakes in berry fields, with bits of stout twine about six inches long. The wind, blowing the bags about, will rattle the peas inside them, and the unaccustomed objects and the rattling noise will keep the birds out of every tree or bed so decorated, and do it much more effectively than will any kind of scarecrow. Two of our small trees of sour cherries, favorite fruit with robins, had four or five of the bags attached to them last spring, just before the fruit began to turn, and so far as the writer was able to observe not a robin alighted in either of the trees. The bags bobbing and rattling about in the wind frightened them away, as was the case also with sparrows.

Ashes Boost Garden Truck

By C. H. McCormack

I WAS interested to read the discussion of wood ashes in FARM AND FIRESIDE of April 22d. I realized their value several years ago, and built a house 6x10 feet for convenience in storing them. The ashes are emptied in the house daily, also chamber slops. This makes a splendid fertilizer for all kinds of fruits, and we also use the ashes in the row when planting potatoes. Some writers claim this will cause scab on potatoes, but we have not found this to be true. When used on potatoes we generally mix the ashes with an equal quantity in bulk of 16 per cent acid phosphate. We always treat our seed potatoes to prevent scab, and have for twenty years or more, using corrosive sublimate. Last year we could buy this drug for \$1 a pound. Now it is quoted at \$6, so we are using formaldehyde this season, at 50 cents a pint.

Several years ago we tried to grow strawberries in our garden. We could grow fine, luscious plants, and the berries would set, and when ripe were not much thicker than buttons. We tried wood ashes with some acid phosphate, and have grown fine berries ever since. I found ashes to be a good fertilizer for any kind of fruit trees, and when used liberally around peach trees, after the sod has been removed, borers have not troubled much.



Crops and Soils

An Army of Worms

By Leroy Calhoun

OUR experiences with army worms last July will certainly help us this year. Among our neighbors where there was no attempt to save the crops, entire fields of oats were practically destroyed, and cornfields with a growth two feet high were trimmed to stumps.

Our crops consisted mostly of garden truck, a field of oats, and a patch of sweet corn. The worms passed right by the vegetables to get to the sweet corn.

We like sweet corn ourselves, so we planned a fight. A quantity of kerosene emulsion was made with which the sweet corn was thoroughly wet. We took pains to have the leaf cavities containing the worms well drenched. This saved the corn and it matured finely.

Scientists tell us that the army worms, like the poor, are always with us in smaller or larger numbers, but it is only when conditions are especially favorable that they develop into serious pests.

There are three or four generations in a season in some sections of the country; and if the first generation or two flourish, midsummer may find a vast devouring army confronting us.

When Crops Fail

By B. F. W. Thorpe

FROST, flood, hail, or insect pests, or a combination of these, often destroy all chances for a crop from our first seeding. What then?

Such failures should not mean the loss of income from a field for the entire season if we are alert for the main chance.

There is a long list of catch crops that fit different conditions of soils, climate, and moisture. Among these are: Rape, sugar corn, flint corn, barley, cowpeas, soy beans, buckwheat, the sorghums, including Sudan grass, vetch, rye, and wheat. Some of this list may also be used to advantage for double cropping to follow successful early crops.

For an all-around catch crop, suitable for producing rapid-growing succulent feed for hogs, sheep, poultry, and any farm stock except cows in milk, rape is hard to beat. The cost of seed is usually small, though it is almost impossible to be obtained this year on account of the European war. Two to four pounds drilled for cultivation, or double the quantity broadcasted, is sufficient.

Rape, barley, and clover as a combination catch crop will furnish a lot of excellent pasture from midsummer to time of killing frost. Five pounds of rape and a bushel of barley or half barley and half wheat and two or three or four pounds of red clover seed to the acre will provide excellent "succotash."

For example, we will say wireworms, frost, hail, or poor seed has spoiled the chance of a profitable corn crop from the early seeding.

I have found that another, quicker-maturing variety of flint or sweet corn can be drilled close to the original rows without much damage to the remaining corn plants of the first planting. In this way can be secured considerable well-matured grain and a profitable crop of fodder without much additional labor. Insects that destroyed the first seeded crop are often beyond the destructive stage when the catch crop is seeded.

Under other conditions cowpeas, soy beans, or any early-maturing variety of sorghum will make a surer crop when late planted than even quick-maturing corn, on account of the greater drought-resistant quality.

A half-and-half cowpea and sorghum mixture south of the latitude of the Ohio River, when drilled 30 or 36 inches apart, may answer the purpose better. In this case 30 pounds of mixed seed per acre will be about right.

Amber sorghum for the more northern latitudes, and sumac sorghum farther south, using 15 pounds of seed drilled for cultivation, will fill the bill better for some soils and climates than will the soy and cowpeas.

Where grain is wanted more than fodder, barley may be best to follow a corn or other early crop failure. Four to five pecks per acre is about the seed required.

In more northern latitudes buckwheat drilled at the rate of 2 to 3 pecks per acre late in June or early in July may be profitable as a catch crop, but buckwheat is rather uncertain as to filling unless weather conditions are favorable.

Millet is a staple catch crop for soils rich in plant food where plenty of fodder for feeding green, for hay, or for silage is needed. This crop, like buckwheat, is of value as a soil cleaner by smothering weeds.

The leading millet varieties are fox-tail, Hungarian, German, pearl, and a Japanese variety sometimes sold under the name of "Billion Dollar Grass." The two last-named varieties are best adapted for silage and silage, and can hardly be considered true catch crops.

These larger varieties of millet are not so well relished by stock as the smaller-growing varieties. The millets require an unusually well-prepared seed bed and plenty of fertility within easy reach.

Broadcasted or drilled solid, about two pecks of seed per acre are required. When cut for hay, do not wait until the heads are fully developed. When grown for seed, from 15 to 40 bushels per acre may be expected.

Wheat, rye, and vetch are not usually put in the category of catch crops, but under some conditions they can follow early potatoes, buckwheat, or similar early-maturing crops or other crops that have been destroyed by army worms, hail, blight, etc. These three last-mentioned crops, when sown in late summer, will serve for cover crops as well as for catch crops, and will also protect the soil from washing and leaching plant food during the fall and winter. At the same time they will furnish needed late pasture and early spring pasture, soiling fodder, or grain, as the case may be.

Alfalfa Kills Wild Carrot

By Lucia Bosley

FIELDS entirely overgrown with wild carrot can be freed from the pest in four years' time by sowing alfalfa.

Plow, and sow the land with wheat in the fall. In the spring, seed alfalfa with mixed alsike, red clover, and timothy. This will inoculate the soil, and you will get the wheat crop at the same time. The following July cut your hay crop, which will contain a generous sprinkling of alfalfa. In the fall, plow this sod and sow as before to wheat.

Next spring, sow alfalfa just as any other grass seed. You will have a fine catch of alfalfa and hardly a spear of wild carrot will appear. If any should come up, the frequent cutting which the alfalfa requires will entirely kill the noxious weed within two years.

You will have had two wheat crops and two of grass within the four years, so there is no waste of time.

This method has given perfect success on several farms in western Ontario County, New York State.

The Corn-Root Aphis

By C. M. Weed

LOOK at almost any plant infested with plant lice, or aphides, and you are likely to find many ants running about upon the stems and leaves. These ants probably will be most abundant where the plant lice are thickest. If you watch one ant carefully, you will see it lap up some liquid given out by the aphids.

These ants are indeed regular attendants upon the aphides. The latter have sometimes been called the "milch cows of the ants."

In the case of some kinds of plant lice their relation to the ants is so important that it is probable the plant lice could not live without the ants. This is not so true in the case of the species living on the leaves of trees and shrubs above ground as it is of those living on the roots underground.

A good example of the care taken of aphides by their attendant ants is found in the corn-root aphis, which is often destructive to corn crops. This soft-bodied little creature lives on the roots of corn and other plants. It is not able, like the wireworm and the white grub, to make its way unaided through the soil. It requires instead little tunnels for its passage along a root, or from one root to another.

Fortunately for the aphids the little brown ant lives in colonies in the soil and adopts the aphids as a sort of foster child. It makes the tunnels along the roots and carries the aphides from place to place. And even more interesting is the fact that the ants take care of the eggs of the aphides, which are laid in autumn. They care for them in the winter, and in the spring when the eggs hatch into little aphides they carry these to tunnels along plant roots where food is to be had.

In early spring, before the corn roots are present, the aphides are carried to the roots of weeds and grasses. Later they are transferred to the corn plants.

Fall or winter plowing is helpful in breaking up the nests of the ants and scattering the aphid eggs through the soil where the ants do not find them. Rotation of the corn crop is also helpful, and should always be practiced if a field has been badly infested.

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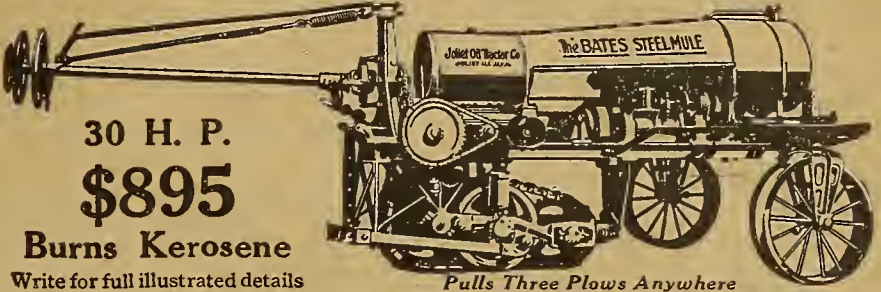
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A Mountain Postmistress

Why a Deluge of Picture Post Cards Caused Her to Resign

By MARIANA M. TALLMAN

Illustration by De Alton Valentine

MISS ALMIRA DUSANTE, postmistress at Witch Lake, sat on the steps of her office and regarded her visitor with rueful countenance.

"Listen," she said in a tone of deep dejection, "as one o' them dratted cards itself would put it, I have troubles o' my own."

The guest pondered.

"But I don't see why you should be breaking up all your home arrangements and letting those funny little twins go. I'm sure their people must pay you handsomely every summer for their board. Why, we shall miss you so—and how do we know what they'll get here in your place? Besides, it was easy and pleasant for you, and you may never—"

"Well, there! Now you *have* loosed them fountains. I said I shouldn't break forth till I'd fairly turned the key for good an' all. Now if you've got time to spare—an' you look 'sif you had it in plenty—I'll tell you once for all jest how easy an' pleasant it's been a-growin' for the last three years. Summers only it used to be, but now it's for a time an' a time an' a season o' times, as the Scripture has it—summer an' winter all alike. First along I thought them picture postal cards was about the completest things that ever came through the office. I recollect I run way up the mounting to show Sister—that was before her vision failed her complete—an' my! it makes me smile now to think how awful careful I used to be not to git my stamp over the pretty part o' the picture. Once in a long while they'd come drifting along; I can remember them happy, peaceful days. Sakes, to think I used to complain o' havin' troubles!

"When the summer season opened that first year we got consid'able many more, an' I used to go carryin' of 'em up to Abby an' gittin' 'em back before folks inquired for 'em as a general thing; but if one did get held over a mail or two it didn't much matter. Abby, she used to admire to look 'em over. One thing we didn't like so well as the old-fashioned kind, however—there wasn't near so much readin' on 'em, an' you couldn't make out near so well what folks was doin'. 'Course anybody has a right to glance over postals, the postmistress particular, because how else can she tell whether folks is in any hurry to have 'em sent along to 'em?

"But it seemed so you couldn't git much satisfaction out o' them picture cards. About all they'd say was, 'Jest leavin' here;' or, 'Arrived safely;' or, 'Love to you all;' or, 'Isn't this charmin'?' or, 'My room is up here,' with a big cross somewhere acrost the picture, an' things like that; nothin' that you could really call news, an' I can tell you we begun to miss it. Take it in the winter time it's pretty lonesome for two women-folks up here when the busses, stops runnin' an' the Wayside an' the Rockwell House are all closed up, an' the boats don't go no more on the lake. Letters wasn't very much service to us—we could only do a little surmisin' on the postmarks, an' oftentimes them would be blurred—but we did set store by them old postals! No, the picture cards ain't no good for news.

"Still, we shouldn't have murmured if we'd known what we do now. Worse was before us. There was a year went along like that, quiet an' peaceful, an' the summer boarders used to bring us post-card albums; they thought 'twould amuse Abby, pastin' of 'em in, and so it did, though by this time her vision had failed consid'able, an' quite frequent we'd find she'd pasted 'em in upside down. So there got to be times when company was lookin' 'em over they'd be some at a loss which way to hold the book, an' have to keep reversin' of it, or else twistin' their necks real uncomfortable, to get good views.

"WELL, then—seems so we didn't have much warnin'—all of a sudden it come on us like a deluge, and it seemed as if the heavens jest opened an' rained down picture postal cards on us! That was the first summer we had the twins to board, too—an' my land! They brought sheaves an' sheaves with 'em, boy an' girl both, and they'd just got so they could write halfway decent an' was awful proud o' it; an' about all the spendin' money their ma left them they took out in buyin' postage for 'em, and layin' in stocks o' new ones from the news-stand down yonder.

"Why didn't I never go into the business myself? Land o' liberty, child, there wasn't profit enough in the pesky things for me to entice the boarders to pass 'em through my hands in greater numbers!

"In the office 'twas stamp an' lick an' punch an' tie up an' hand out from mornin' to night, an' I ackchally got so I never stopped to read one! What was the use? All there'd be on 'em was a word or two; they'd scribble when they first arrived, as they rushed in an' bought stamps while the stage was waitin' outside, something like, 'Hurrah, here we be!' or, 'Letters will follow;' or, 'Pretty, isn't it?' and sometimes just, 'Love;' or, 'Maude,' an' then again never a word at all.

"'Twas funny they'd run to scenery, though. There was some nice pictures o' real interestin' places, I will say that for 'em, but they mostly took sceneries, till I got sick to death o' old Witch Lake an' Cobble Hill an' Potash Kettle. An' I got so I jest fairly enjoyed thumpin' my stamp down good an' hard on them sceneries.

"There was one stamp I thought consid'able of—'twas a long, spread-out one, some like a gridiron, an' it covered up the biggest part o' the scenery when I had plenty o' ink on it an' give it a little twist. It wasn't right to use the twist, o' course, but there was times when no saint tendin' post-office could 'a' helped but yank it a little mite, with supper waitin', an' the mail bag bein' flapped in your face, an' the driver swearin' because the mail wasn't made up yit. No livin' woman could 'a' handled the postals on time that poured in from right an' left. You know there's thousands o' folks comes past there every summer, but I never had no realizin' sense o' jest how many till they'd all stop into the post-office to send off cards. I'll wager there wasn't one traveler from high to low but what sent off 'Here I be;' or, 'Jest lovely,' in the course o' the summer season.

"THE twins was in the thick o' it all, beggin' an' borryin' an' showin' off their postals. They wrote to all their chums in school an' their teachers, an' all their relations by their father's an' their mother's side both, an' near's I can make out they begged an' implored 'em to answer 'em in postals, an' nothin' but postals. They fell out o' my books, an' they sot in rows along my pantry shelves, an' they was stuck up in fish nets all 'round my walls. An' course all the boarders had got to see their 'collections,' an' they'd all promise 'em soov'neers when they got back home—an' most of 'em had awful good mem'ries! They pitied the poor twins, so fur away from their ma, an' as they traveled seems so their paths was strewn with postal cards shed off at every halt, for me to punch an' stamp an' sort out, an' then hand out to them pesky twins.

"If ever a woman rejoiced to see a summer end, it was me. I never used to feel no pain to see a tallyho draw up before my door an' a dozen gay birds come tiltin' down an' hoverin' 'round the place. But after the postal cards sot in sech fury they'd all make straight for my door, an' after ascertainin' that I hadn't got none they'd all run down to the landin' an' procure some, an' come skippin' back ag'in with glad cries, an' then all want pens an' ink to once.

"An' then they'd put on things that reminded me much as anything o' the corner finish we used to put in our autograph albums—no, you're too young to remember, but it used to be the style, after we'd wrote our names in the middle o' the page, to stick up 'round in the corners something like this: 'Friendship, faith, and affection;' or, 'To one I love;' or, if 'twas school-girls, 'Pickles, do you remember?' or, 'Never forget doorsteps, Nelly;' or, 'May baskets for four.' Well, these postals was about as full o' deep an' tender

meanin' as them old albums was. An' sometimes, after all was still an' peaceful ag'in, an' I'd be thoughtfully lickin' their stamps on (for they most generally left the lickin' of 'em to me), I'd heave a long sigh an' reckon up what they'd spent for each seemin' foolishness, an' wonder if their loved ones was goin' to value 'em accordin'. But worse was comin'.

"Next summer back comes the twins, fatter an' more energetic than ever, with trunks full o' new style albums an' post-card frames, an' sniffin' the scent of battle, so to speak; an' what had they got now but a lot o' comic postals! They said they was goin' to be all the go that year, an' so it proved. 'Fore they'd got their things fairly off, or thought to visit the cooky jar, they'd tipped over my ink bottle, an' with giggles an' streamin' ink they'd sent off a couple. One read, 'I'm on the water wagon now;' an' the other one, 'Don't be another.' I forgit whether 'twas a picture o' a monkey or a donkey, an' it didn't make much sense either way; but when I questioned 'em they said, 'Why, it was a comic.' So they shipped 'em off with a round stamp mark, good an' heavy, laid like a halo 'round the head o' the donkey—or the monkey, I forgit which.

"Well, when you consider the age o' the twins, 'twasn't so bad; but all the grown-up boarders followed suit, an' bought sech foolish-lookin' picture cards I give up takin' any up to Abby, or even explainin' of 'em to her, for she couldn't see scarcely at all by this time. But the boarders never could seem to bear that in mind; an' we'd been receivein' postals pretty much all through the winter, both for her an' I from folks that we'd been glad enough to regularly hear from; but 'twas the same old story, all picture an' no news, thinkin' it would cheer us up, never havin' no notion, o' course, how the sight o' them things fairly made me sick. I got so I heaved 'em quite in the stove mostly, for Abby's albums was long ago filled to over-flowin'.

"WELL, on they come, thicker an' faster, an' now they begun to get up great big ones, made o' everything you could put your hand to, so that when I was doin' of 'em up I'd lose out a few here an' there where the little ones would slip past the big ones. An' I'd say a word or two low, under my breath—seems so I had to—an' stoop down an' pick 'em all up ag'in. But when I'd be shakin' out the mail bag, them decorated ones would shake off consid'able shiny stuff. I don't know jest what 'twas, all glitterin' an' prickly, an' I'd get it up my nose an' down my throat, an' had to have the doctor, an' he said I mustn't inhale it or there'd be serious trouble. So I'd shake out the mail bag with my mouth an' eyes closed firm, an' my head turned the other way an' my eyes shet, an' one o' them postals slipped off down a crack, an' o' course that particular one had to be one that really did happen to have something on it, an' it said, 'Be prepared for company. We descend on you Friday with a coachin' party for overnight.' An' there 'twas Friday mornin', as I was sweepin' up, when I found it! If I didn't send them twins flyin' over with that message! But she was consid'able put out—why, didn't I say 'twas Mis' Bezely? Well, 'twas anyway, an' you know what *she* is. An' she don't feel right towards me yet. Well, so it went, an' by an' by there begun to be complaints that folks wasn't gittin' their postals, an' suspicion p'inted towards me as bein' sort o' careless.

"You see, I'd been sendin' 'em round, where there seemed to be any sort of haste, by the twins, that loved to carry 'em, because after they'd been read they'd often git 'em back. An' all of a sudden a dark thought come to me—'twas after our supper time, an' the twins had gone up to bed—an' I rushed up there to question 'em. An' there they laid, clean beat out an' fast asleep. So I let 'em slumber, an' went down to search through their albums. An' there I spied date after date, fresh an' new, an' some of 'em bearin' the very words their friends said hadn't never been wrote to 'em. Them little imps o' darkness had been pastin' them new postals right in their books off-hand, 'because,' they said, 'they always give 'em to us anyway, an' there's never nothin' on 'em anyhow.' They said they was in a hurry to git their books filled up! Wasn't that the beat-all?

"Well, that blowed over after a time, but I was gittin' thin an' wore out, an' when at last one day a piece o' one o' them glitterin' isinglass towers flew up an' took me in the eye an' near blinded me for a week, I *did* give up. Says I, 'I can't live this way no longer, an' I cast about in my mind, soon's I could see straight, how to have a complete change. I knew I must if I lived through the season. An' my cousin over the mounting—she lives in a real pretty way down near the village—she wrote me to come an' stay jest as long as I felt I could be spared. I made 'rangements that very day to go, an' let old Sol Peters, that used to me postmaster, spell me.



"Left to myself, I piled into that bed, shoes an' all, an' pulled the clothes over me"

"Well, I set forth. Oh, how good it seemed to leave all that care an' foolishness behind me, no one can tell that hadn't been there! That day was the peacefullest I'd known for years.

"Any time you'd like to go up to your room an' lay down, you go," said cousin. "You ain't got a thing else to do but rest, you know."

"So thinks I, why not go up now an' see how it seems to lay down in broad daytime? So up we went, cousin beamin' with pride.

"You'll enjoy layin' there an' lookin' 'round," says she. "It's a real pretty room." An' she showed me in. Oh, never shall I forget the horror an' dismay that seized me as I looked round! What had that woman done but got every inch o' that room wall-papered with picture postals!

"I sunk right down—I felt kind o' faint. Oh, how dreadful them walls did look to me! They turned me kind o' crazy, an' I gave a loud laugh, an' I says, 'Hurrah, here I be!' Creeshy was seared. I couldn't blame her, but seems so them sounds come right out o' me. She looked at me so startled I made a vast effort, an' says I, 'Oh, ain't them walls beautiful! Leave me alone, Creeshy, I'll come all right.'"

"Left to myself, I piled into that bed, shoes an' all, an' I pulled the clothes over me, an' I jest lay an'—Oh! Oh! Oh!" says I.

"I jest laid there, till Creeshy looked in to see how I was feelin'.

"By that time I was feelin' more composed, for I'd made up my mind to go straight back home first thing in the mornin'. So I rose up an' asked her to excuse my strange actions, that 'twas a kind o' reaction after my hard work. I packed up for home an' told Creeshy I was homesick. She bid me good-by considerin' cool, an' I couldn't blame her.

"We rode to the post-office. I see, piled high on my counter, heap upon heap o' the strangest-lookin' things—an' as I picked 'em up I see they all bore one-cent stamps, an' was all directed in ink an' everything; an' they was jest great slabs o' birch bark, peelin' at the aidges, an' contrived in different shapes. An' they all said in nice, lady-like hand-writin', 'Greetin's from the birches. Louella Jameson.' Mis' Jameson, up in my birches! An' slashin' off my bark!

"Oh, my, it did seem so something snapped right inside o' me, an' I said in a loud hoarse tone an' with an even wilder laugh that scared the twins right side up, for they'd come troopin' in, an' was explorin' in the apple barrel; says I, 'Greetin's from the birches! Yes-s-s! An' there's nothin' I'd like better, Mis' Jameson, than to give you greetin's from the birches, only 'twould be in the shape o' rods, an' not picture postals!'"

"I stood glarin' 'round kind o' wild, so that the girl twin, that had jest started up to examine the new postals I still had clutched kind o' mechanical in my hand, tiptoed back ag'in. An' with that I marched out down the yard, over to my old hen house, an' with the strength o' despair I wrenched the old black door off its hinges, an' still feelin' wild an' like some other woman, I put on it a two-cent stamp, an' wrote on it good an' big with chalk:

"I'M ON THE WATER WAGON NOW
Greetings from Almira Dusante!"

"An' I said to them spellbound twins, 'You catch a hold of this, an' you march yourselves down to Mis' Jameson's, an' you tell her it's a comic postal, an' there's three dollars and nineteen cents over-weight postage to pay on it.'"

"Then Sol Peters come along, an' says he, surprised like, says he:

"Why, Almira Dusante, what are you doin'?"

"I'm out in the kitchen puttin' up peaches," says I.

"Sol Peters looked at me sort o' hard an' says he:

"Almira, I reckon the heat has sort o' turned your head."

"Mebby," says I. 'Mebby. But there's about to be more heat. I've got three hundred picture postal cards stored in the stove, comic an' plain fool, an' I'm goin' in to touch a match to 'em."

"I found the matches. I picked out one with great care, an' scratched it solemn on the side o' the stove an' applied it careful. Most o' them three hundred cards said they was on the water wagon—but they burnt."

"But by sober daylight, after a good night's rest between my good-lookin' bare walls, I see the whole thing clear. I knew flesh an' blood couldn't keep a-bearin' such a burden—not my flesh an' blood, anyhow. I knew old Sol Peters, that used to be postmaster, was hankerin' for my job, an' I thought it could be arranged. An' now I wisht you'd come in an' tell me how to write a real pretty letter to the Postmaster-General, an' give him my resignation. He may find it hard to git along without me, but he's got to do it. If he don't like it he can hop on the water wagon."

How Girls Can Make Money

By Hiram H. Shepard

FARM girls have chances for making spare money for themselves as well as farm boys. Girls can learn to do things well, and in most cases they make even better salesmen than boys. A twelve-year-old girl near here last year grew and marketed early tomatoes and late cucumbers. Her vegetables were good, yet no better than others. However, she had native ability in securing sales for her products in the home town. She went from house to house in the town and told women what she was growing. She took orders from the start, and delivered her vegetables promptly, using a spare gentle mare and an old buggy of the farm for hauling the products to town. She soon secured some good regular customers who purchased her vegetables in preference to others. From her tomatoes and cucumbers she made enough money during the summer at spare time to purchase many things she wanted and for a 150-mile railroad trip to visit her aunt and some girl friends, and she had some cash left for spending during the winter.

A number of other farm girls the writer knows make money with poultry, vegetables, small fruits, and flowers. One of these girls makes as high as \$50 each summer from a patch of strawberries which she cultivates at spare times. Another girl and her sister grow and market pole Lima beans, often selling from \$5



to \$10 worth of shelled Lima beans in one week during the harvest season. Another girl grows asters, dahlias, sweet peas, and cosmos, selling the flowers to a city wholesale store. Some years she makes from these summer flowers as high as \$150, and seldom makes less than \$100 in a season.

Conditions, however, will determine to a large extent what things can be done with the greatest success in particular localities. For example, if you live far out in the country and cannot conveniently make frequent trips to town it would not be wise to grow radishes, strawberries, or other things that must be marketed often. But you could grow celery, potatoes, corn, and many other things that need not be marketed quickly and in small lots. Markets and distances from markets must be considered in producing anything for sale. Poultry and animals of all kinds you can grow profitably in any locality.

Besides dozens and perhaps hundreds of different vegetables, small fruits, and flowers that farm boys and girls can grow for sale, there are several farm animals that boys and girls can easily handle. There is good money in growing pigs, sheep, chickens, other poultry, and pigeons. Right now big prizes in many places are being offered for growing the best pigs. It is all right to enter contests and compete for prizes, but why not start into business on your own hook and produce something without the offer of prizes? The experience, fun, and cash derived from your work will be prize enough.

The farm, of course, is a busy place. Your parents can use you in helping in the home, the garden, and the field. But they will allow you to do some work of your own, and gladly, if you explain your plan to them. All of you have some spare time, and you can use it in developing an industry of your own for earning spending money. Your parents will be delighted to find you becoming interested in useful lines of farm production. Show them that you are interested and able to carry out your plans.

Book Reviews

THE AUTOMOBILE BOOK by Duryea and Holmes tells in a complete manner about the construction and operation of automobiles. It is clearly arranged and illustrated, and should be valuable to anyone who owns or expects to own a motor car. 336 pages. Sturgis & Walton Co., New York City. Price, \$1.62 postpaid.

Send for new "Money Saver" booklet

Barrett Money Savers for Farmers

DON'T eat more dinner than you can hold simply because the cook has prepared more than you can eat. If you do, you'll probably have "inside information" that things are not quite right. By the same token, don't buy something that you don't need merely because it's cheap. If Robinson Crusoe had paid one cent for a postage stamp he would have been a spendthrift.

But, when you find things that have an every-day need, selling at moderate prices, then is your time to *economize by buying*. Such products will save you money. We make such commodities. This page describes six of them. Sold by good dealers everywhere.

Everlastic Roofing

Insurance against wind, weather and water can be had very cheaply by laying Barrett's Everlastic Roofing wherever you have a slanting roof. The best "Rubber Roofing" on the market at the price. It is easy to lay, costs little and gives satisfaction for years. Just the thing for barns, outbuildings, and poultry houses. Comes in rolls of 1, 2 or 3 ply weight, each roll 36 inches wide. You could pay twice as much and not get as good. Write for information and prices.

Creonoid, Lice Destroyer and Cow Spray

One of the little things so often overlooked is the relation between contented live stock and profits. Best results cannot be secured if your live stock is infested or worried by flies. Spray your horses, cows, pig-pens and hen houses lightly with Creonoid. It positively and permanently destroys vermin and lice. Keeps flies away. Makes healthy porkers, happy cows, good tempered horses. More flesh from your live stock. More eggs from your hens. More milk from your cows. Follow directions carefully.

Everjet Elastic Paint

We have a product called Everjet Elastic Paint that will save you many a dollar every year. It is a wonderful roof paint. Applied to ready roofings, it adds years to their life, makes them leakproof and improves their appearance. Everjet is invaluable for farm improvements. Protects them from rust and keeps them new. It never peels, scales or cracks. The best carbon paint made. Good wherever you have exposed surfaces. Try a can.

Barrett's Grade One Liquid Creosote Oil

The best fence post made will rot if not protected with a good preservative. You can make an ordinarily good fence post last 20 years by using Barrett's Grade One Creosote Oil. It is the best wood preservative on the market. Penetrates deeper than any other creosote product. Hence it accomplishes more. We can show you tests to prove this. Save the expense of timber renewals. It's a big item. Wherever you have wood exposed to moisture or earth, preserve it with Barrett's Grade One Creosote Oil.

Barrett's Tylike Shingles

If you haven't seen Barrett's Tylike Shingles, you ought to get acquainted now. There is no roofing claim that doesn't apply to them. They add class to any house because of their beauty. They are absolutely waterproof and need no paint. They are fire resisting. Tylike Shingles are made of crushed stone on a waterproof base. Laid like slate but they look much better and cost less. Do you want the handsomest roof in your section? Then use Tylike Shingles. High quality, long life, lasting satisfaction. Red or Green. No artificial coloring.

Elastigum Waterproof Cement

Many a farmer or house owner has saved the day, by having Barrett's Elastigum handy. This tough, elastic, adhesive cement is a wonder for those quick repairs that are daily coming up. And it makes those repairs permanent. If you have a leak to fix, a joint to seal, use Elastigum. Unexcelled for joining or relining gutters of wood or metal, and for flashing around chimneys. Elastigum is a real "bandy man" and you ought to have it on hand. Good for a hundred uses.

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Housewife's Club

Labor Saved for the Home

By Mary C. Blue

MANY women do not know the time and energy that useful kitchen utensils save. Many farmers' wives have few labor-saving devices except the sewing machine and the washing machine. How different with their husbands! We know that it would be the greatest extravagance for them to try to get along without labor-saving devices.

Usually it is considered economy for a woman to get along without buying implements. But any device that will do the work of a pair of hands in a fraction of the time will pay for itself. The clothesline reel, by means of which a delicate woman can stand on her back porch and hang out her clothes on a winter day, may save much suffering. A clothespin bag or apron, either worn around the waist or pushed along the line, will save much energy.

The woman with a gasoline engine to run the washing machine and wringer is certainly fortunate. But a hand-power machine is much better than a washboard. A woman with many starched clothes to iron will appreciate a clothes sprinkler, as it distributes the water evenly without getting the clothes too damp. A whisk broom is also convenient for sprinkling clothes.

The alcohol, charcoal, or gasoline irons are all labor-saving. But why does not the American housewife use the mangle? In Europe the mangle is used by the poorest houseworker. It is said that three fourths of an ordinary ironing can be put through the mangle. As many clothes can be ironed in ten minutes with the mangle as can be done in one hour by hand.

Asbestos mats to be placed in the oven or on the stove to prevent food from scorching pay for themselves many times over. A wire kettle bottom, to be placed inside the kettle, is another convenience for preventing food from burning. A double boiler should be in every kitchen. There are few methods equal to the double boiler for reheating vegetables.

A fireless cooker pays for itself in saving fuel, to say nothing of the convenience of going to town or working in the garden and knowing that the dinner is cooking and will not burn. Some foods cooked in a fireless are much more nutritious and palatable than when cooked at a higher temperature. The steam cooker in which meat, vegetables, and pudding can be cooked at the same time with little attention from the housewife is a boon to the busy woman.

The wire basket to be used in frying saves much time. And then when little daughter cooks the meal she can place the potatoes or other vegetables in the wire basket, and there is much less danger of burning herself, as the basket can be easily removed without draining the kettle.

Have a guard knife for the children to use when they first pare vegetables. They will then learn to use these knives as well as the common paring knife. This is really quite a saving, as it is impossible to take a thick peeling with these knives, hence there is no waste.

A wire kettle scraper pays for itself in a short time in the saving of knives, and does the work in a fraction of the time a knife can.

Several five-cent vegetable brushes are good servants: one for washing vegetables, one for cleaning chickens, one for washing overalls, and the like.

For a large family an apple parer and vegetable slicer are great helps. A lemon squeezer, corkscrew, soap shaker, graduated measuring cups (both tin and glass), funnel, lid rack, pallet knife or spatula, egg beater, rubber window dryer, dustless dusters, are all useful utensils.

Is not the housewife penny-wise and pound-foolish when she stirs up the dust with a broom all winter long and then in the spring takes her carpets out and nearly beats the life out of them and herself as well, trying to clean them, when a small hand-power vacuum cleaner would have kept them clean all winter without even making a dust?

Our grandmothers made their everyday clothes by hand, but could the busy woman on the farm do this to-day? But is she not wasting time mixing and kneading bread when a machine costing only a trifle can do it in a fraction of the time?

When women learn the necessity of machinery as man has learned it, one step in the direction of home betterment will have been taken. And another step in the right direction will have been made when man realizes that the highest priced power on the farm is his wife's muscles.

Reclaiming Waste Books

By Mary Talbott

WE SHOULD all know how to freshen old books, for otherwise many a useful volume may wear out and drop apart and finally perish on the bonfire. If we know how to bind books, moreover, we can buy cheap paper editions of fine works and make them strong and presentable at small expense.

There are a great many materials to choose from in making covers for books, but the most substantial are linen, heavy and light crash (on which designs can be stenciled), and old-fashioned chintzes and cretonnes.

The tools needed are a ruler, a sharp knife, sharp scissors, paste and glue, a flat brush and binder's board.

A good place to cover books is on the kitchen table. Cover with several thicknesses of newspapers and remove the layers as they become soiled. Spread the material to be used wrong side up and flat upon the newspaper, and with a ruler draw accurately a rectangle to fit the back edge of the book.

This is the hinge or axis of the volume. To the right and left of the space just made place pieces of the binder's board cut either the exact size of the sides of the book or a quarter of an inch larger, according to individual taste. Be careful to place the boards with their sides exactly parallel to the drawn rectangle, with the top and bottom exactly on the same level as the top and bottom of the axis space. When cutting the material allow a half-inch margin outside the lines drawn, the surplus being for the purpose of turning in.

The glue must be very hot before it is applied to the covers. A good plan is to place the glue can in a larger vessel of boiling water.

Apply the glue to the boards where the extra half-inch of material is to be turned in, work it on with the brush along a strip about three eighths of an inch on the edges, from the center out, so if there is any surplus glue it will run along the edges where it is most needed.

Work quickly while the glue is soft. The boards should now be placed in the spaces drawn and the covering pulled over the inside edge where the glue has been applied.

Cut the lining one-half inch larger all around than the cover. Fold this margin over and apply glue to the wrong side of the cover and then place the lining over the entire cover carefully, to avoid wrinkles. When this has been done, put the whole cover, spread out flat, under a heavy weight and leave it until the glue hardens. This cover is then ready for the book, to which it can be fastened by means of two small holes punched in the back or in the hinge of the cover, through which a piece of heavy cord is run. Or the cover can be glued to the book.

Recipes

Strawberry Pudding—In a buttered pan lay slices of bread, then a layer of strawberries, a little butter and sugar. Add another layer of bread, then berries, and so on until the dish is filled, with strawberries on top. Use a little water to moisten. Bake in moderate oven until brown. Eat with or without sauce.

HELEN SYMAN.

New England Hash—Run some cold corned beef through meat cutter, about an equal amount of cold boiled potatoes; sprinkle with pepper; take a good slice of salt pork, dice it, put in hot frying pan and fry brown. Then put in the hashed meat and potatoes with it. When it browns a little bit, stir and let brown again until it suits. If it gets a little dry, add a few spoonfuls of water while cooking. If you don't mind expense, put a poached egg on top when you serve.

L. E. L., Connecticut.



Needlework

Using a Dress Form

By Mrs. Martha A. Rand

I HOPE the busy housewives who do their own sewing will try my way to get perfect results in fittings.

I bought a cheap non-collapsible dress form on which I put my corset, also a suit of lingerie. With crumpled paper I pad it out to my exact measure—bust,

after they are stitched. To do this, turn the coat, skirt, or waist wrong side out and place on the ironing board; open the seams and dampen; then press quickly with an iron which is not too hot, as woolen goods scorch easily and silk may be discolored.

If a skirt is the article being made, it will be necessary to try it on again to get the length. So that the hem will be even, cut a cardboard just the exact width you desire the hem and use it to measure with. You will find this much simpler than using a tape measure. Baste the hem at both edges, and bind with a bias piece of goods the raw edge. Then stitch with the machine on the right side of the goods. Now you are ready to press again, this time using a damp cloth. Good pressing adds very materially to the looks of a dress.

If buttonholes are required I should recommend cutting them in another piece of goods first, so as to be sure of the exact size. Mark the places for buttonholes on the garment; then, to prevent fraying and to make the buttonhole firm, stitch with the machine two parallel rows one eighth of an inch apart the length of the buttonhole. With scissors cut between these rows of stitching; then proceed to work the buttonhole with silk twist, the color of the material, with the regular buttonhole stitch. To finish nicely, press on the wrong side with a warm iron.

Household Hints

A Bluing Hint—A handful of salt in the rinsing water will keep bluing from settling and streaking the clothes.

L. G. C., Massachusetts.

To Relieve Pain—This is a remedy everyone should know; first, because it gives almost immediate relief; and, second, because milk or cream is always available on the farm, whereas the medicine bottle is oftentimes found to be empty just when needed most. If a person or a horse should get tar in the eyes, put in a few drops of milk or cream. It will also afford relief if cement or a snail should get in the eye. F. F. C., Ohio.

To Clean Piano Keys—Rub the keys with a soft rag, saturated with alcohol. This will remove all dirt and stains.

L. G. C., Massachusetts.

To Brighten a Carpet—Take up the carpet and beat the dust out, or use a vacuum cleaner. Then, when it is again in place, fill a bucket two thirds full of lukewarm rain water to which has been added three tablespoonfuls of household ammonia. Take a soft cloth, dampen, and rub only a small space at a time. Then rub dry with another cloth, being careful to lap one place on the other to avoid streaks of dirt.

F. F. C., Ohio.

Too Much Salt—Sometimes a costly meat or vegetable is spoiled by being twice salted. As soon as any dish is found to be too salt, place a white cloth over the dish in which it is cooking and spread the top of the cloth with flour. Let the vegetable boil briskly and the flour will absorb the salt. L. M. T., N. Y.

New Puzzles

Two Riddles

A hundred and fifty when joined to a tree
Makes a fine garment that warms you and me.

I with a pen my first display;
My next increases day by day;
My whole is fraught with anxious fears
For those who'd hope for many years.

Answers to Puzzles

Puzzles Printed Last Issue

Missing Cities

Leghorn, Milan, Tokio, Brussels, Madras, Morocco, Smyrna, Cork, Canton, Hamburg, Saxony, Cologne, Quito, Boston, Lima, New Orleans, Cayenne, Havana.

Shoulder Shawl



JUST the thing to throw around the shoulders on cool mornings and for summer porch wear. Four cents in stamps will bring the complete directions from the Fancy-Work Editor, Farm and Fireside, Springfield, Ohio

waist and hips. On this I build my dresses with comfort and pleasure, and get perfect results.

I also use the same method in making my daughter's dresses, saving her the tiresome standing up to be fitted. With a skirt marker I get the right length on the skirts. I am delighted with the success I have had, and hope others will try it.

To Aid the Amateur

By Fern Lawrence

IF ONLY one "Sunday" dress or coat can be had during a season, select a material, color, and pattern that will not be conspicuous by their oddity. Get a pattern that is as near your size as possible. I should prefer one a little large instead of too small, as it is easier to take in than to add to. Now that you have these, study your pattern carefully before cutting into the material. Familiarize yourself with every detail. Lay the pattern on the material according to directions, and pin; then cut out each part. Baste all seams together before stitching with the machine; this prevents stretching. In fact, you should place a pin in the goods at the waistline of a skirt or at the armholes of a waist or coat; then put a pin at the lower edge of the garment under way. Any fullness between these two points can be "eased" in. Next, try on. After you have made any alteration that may be necessary (in nearly all patterns some little alteration is usually needed) stitch with the machine, and if a stitch of medium length is used the work will be much neater.

If the material is woolen or silk it will be necessary to press the seams in the coat open (laying the edges of the goods either way), while those in a skirt or waist, in most cases, fit better when pressed flat (both edges the same way)



Sunday Reading

Pass It Along

By Rev. J. M. Long

I REMEMBER very well a warm spring afternoon when a whole row of us boys were sitting on the long back seat of the schoolroom to recite in class and I received a sudden nudge in the side from my neighbor, who, boylike, had taken advantage of the teacher's momentary absence.

"What's that for?" I demanded.

"Pass it along!" he whispered.

I don't remember whether I did,—I hope I did not,—but whenever I think of the incident it teaches me this lesson: Don't "pass along" the unkind thumps the world gives you. Some parody the Golden Rule thus: "Do unto others as they would do unto you, if they got the chance;" or, "Do the other man before he can do you." But this is the wrong spirit.

Most men are taking a course in the University of Hard Knocks, otherwise called "experience," and they are the better for it; but they don't need your "knocks" in addition to their own. You have no right to impose your "moods" on anybody. Let the unpleasant things of life stop with you, and don't burden other people with them. You can do yourself more harm by nursing a supposed injury than the person did who inflicted it. And it is certainly wrong and unchristian to "take it out of somebody else."

Josh Billings compares the man who is sour over his misfortunes to one who has the skin of the hornet that stung him stuffed and set up on the mantel where he can shake his fist at it every day. Better let the matter drop and forget it.

But "pass it along" has a better application—a positive one. Let me illustrate this also by a boyish incident. I met one day a pleasant-looking old gentleman walking along with his hands behind him. As he passed me he held out one of them containing a big Bartlett pear. It seemed to me it was the biggest and most tempting one I ever saw. He said not a word, but only smiled as he offered the pear. Of course I took it, thanking him for it. I had never seen him before, and never met him again, but I never forgot his kind act.

Years after I happened to be walking along the same street with a basket of big red Williams apples, which were my own, when around the corner came a forlorn, ragged little fellow. The incident I have just related flashed into my mind, and I did exactly what you would have done, held out to him the biggest apple in the basket, without a word, but only a smile. He could not believe it was for him at first, but finally took it with much satisfaction, and went on his way eating it and enjoying it as much as I had the Bartlett pear.

We never forget a kindness done us, especially from an unexpected source and when we greatly needed it. Daniel Webster says that when he was a green country boy just starting in to read law in a city office a kindly old gentleman came up to him one day and, shaking hands with him, remarked that he knew his father, and was glad he was starting out in life with a purpose, and believed he would succeed. Although in the years of his splendid achievements afterward Webster received the congratulatory handshakes of his countrymen many, many times, he said he could still feel the kindly grasp of that friendly hand that came when he most needed encouragement.

And Dwight L. Moody told the story of an old gentleman in his native town who gave him, as he did every new boy he met, a big old-fashioned cent and a good word of advice with his best wishes. Mr. Moody said after that he never saw a cent that looked as big as that one, and the kind act helped to inspire him to befriend hundreds of young people.

Rev. Robert Burdette says: "When you get through pumping, leave the handle!"—let the next weary traveler have a chance to quench his thirst.

Pass on the good things, the happy experiences that come to you—never the unfortunate things. By the time we have come to realize our debt of gratitude, too often our benefactor has passed away and we cannot repay him. But let us do as he did—pass along all the good we can to others. The two boyhood incidents I have related have preached me a good sermon by which I have tried to profit, and I "pass it along" to others.

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